

To
PROFESSOR WILBUR FISK LITCH, M.D., D.D.S.

Whose genius and influence as an author, editor
and teacher has made each dental
practitioner his debtor

This volume is gratefully dedicated

BY THE AUTHOR

HISTORY
OF
DENTAL SURGERY

EDITED BY

CHARLES R. E. KOCH, D. D. S.

CONTRIBUTIONS BY VARIOUS AUTHORS

IN THREE VOLUMES

Volume III

**Biographies of Pioneer American
Dentists and Their Successors**

— BY —

Burton Lee Thorpe, M. D., D. D. S.

Associate editor of The Dental Brief; Author of "The Founders and Ex-presidents of the Missouri State Dental Association."
Secretary Committee on History, National Dental Association; Secretary Commission on History of
Dentistry, Federation Dentaire Internationale; Chairman Committee on History, Missouri
State Dental Association; Chairman Committee on History, St. Louis
Society of Dental Science; Member of the St. Louis
Medical History Club, etc.

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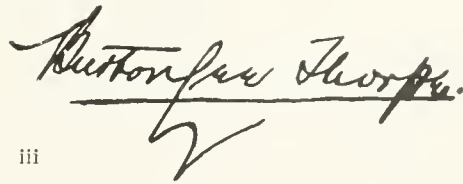
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Preface

THE compilation of biographical data of the fathers of American dental surgery was begun by the author in 1900. Their first published appearance was in *The Dental Review* (Vol. XVI, March, 1902, P. 246). In the same issue Dr. C. N. Johnson editorially says of them, "Beginning in this issue of *The Dental Review* we purpose publishing a series of biographical sketches of prominent men of the past connected with the profession of dentistry together with their portraits. A sketch will appear each month, and we predict that they will make most interesting reading. They are from the able pen of Dr. Burton L. Thorpe, of St. Louis, who has spent much time and energy in gathering together the necessary data, and who is especially well equipped for the work. Dr. Thorpe brings an enthusiasm into this effort which must make for success so far as a faithful and vivid presentation of the chief characteristics of the leading men of the profession is concerned. We promise a rare treat to our readers, such as is not often afforded them in the pages of dental periodical literature." The following issue (April) he also says editorially, "It is with much pleasure that we note the lively interest being taken in the 'Historical Sketches' by Dr. Thorpe, in *The Dental Review*. It is a healthy sign when dentists are desirous of knowing something about the men who gave an impetus to the early development of the profession, and the time seems propitious for placing on record the chief events in the professional careers of those pioneers, etc."

These sketches appeared monthly in *The Dental Review* until the March issue, 1904, when the author became Associate Editor of *The Dental Brief*, in which journal they have appeared monthly to December issue 1908. To these already published, twenty-nine unpublished sketches have been added for this volume. The author gratefully acknowledges his indebtedness to those who have so generously assisted him in this compilation by furnishing data, illustrations, etc. His especial thanks are herewith given to Drs. Wm. H. Truman of Philadelphia (himself an encyclopedia on dental history), also to Dr. Chas. McManus, Chairman Committee on History, National Dental Association, Hartford, Conn., Dr. H. A. Smith, Cincinnati, the late Dr. Jonathan Taft, Dr. A. H. Fuller, St. Louis, for the use of his library of periodic dental literature, and to all others who have assisted in this collation.

3605 Lindell Boulevard,
St. Louis, Missouri.


A handwritten signature in dark ink, reading "Burton L. Thorpe." The signature is written in a cursive style and is underlined.

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Button Lee Thorpe.
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Burton Lee Thorpe

Burton Lee Thorpe, M.D., D.D.S., was born June 29th, 1871. Educated in the public schools. Began the study of dentistry with a preceptor in 1890. Attended the Western Dental College, Kansas City, Missouri, and graduated with the degree of D.D.S., March 5, 1895. Immediately after becoming a member of the Missouri State Dental Association in which he, from the first, took an active part, he served this society as Corresponding Secretary 1898-99 and 1900, and was elected its President 1901. The same year was appointed by Governor A. M. Dockery member of the Missouri State Board of Dental Examiners and in 1903 re-appointed for five years, serving as President of the Board in 1903. Elected Vice-President for the West of The National Association of Dental Examiners 1901 and 1902 and in 1903 was elected President but resigned, August, 1903, when, assisted by Drs. D. O. M. LeCron and S. T. Bassett he organized The Barnes Dental College of which he was the first Dean of the Faculty, and Professor of Operative Dentistry and Dental History. Owing to a disagreement with the trustees, he, with the entire faculty, resigned December, 1905, after two and a half years' service. Dr. Thorpe was the originator of the Fourth International Dental Congress held at St. Louis, 1904. In 1900 he took the initiative and presented the plan of organization to the Missouri State Dental Association and the National Dental Association, he was appointed by the latter society as one of the Committee of 15 to organize the congress, and did yeoman's work in assisting making the congress the great success it was. The Universal Exposition Company conferred a commemorative diploma and gold medal on him for the important service he rendered in this connection. In 1904 he became associate editor of "The Dental Brief," a position he still retains.

In 1904 he was elected Assistant Secretary for five years of the Federation Dentaire Internationale and one of a committee of five delegates to the same, representing the National Dental Association of the U. S. to assist in organizing the Fifth International Dental Congress at Berlin, August 23-8, 1909. He was the originator of the Jamestown Dental Convention held at Norfolk, Va., Sept. 10-12, 1907, and a member and chairman of its Committee on Organization. Corresponding Secretary of the National Dental Association 1906-7-8 and Secretary of the Committee on History of the same. Secretary of the International Dental Federation, Commission on History, Chairman Committee on History of the Missouri State Dental Association, Chairman Committee on History St. Louis Society of Dental Science, and member of the St. Louis Medical History Club and the Fourth International Dental Congress Committee on History. President of the St. Louis Society of Dental Science 1905. Organizer and first President of the St. Louis Auxiliary Supreme Chapter Delta Sigma Delta Fraternity. Member of the National Dental Association, American Medical Association, Missouri State Dental Association, St. Louis Society Dental Science, St. Louis Dental Society. Honorary member of the Kansas, Colorado, Virginia, Ohio, Iowa and Southern Illinois Dental Societies, Delta Sigma Delta and Interstate Dental Fraternities.

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E. P. D.

Biographical History

Of Pioneer American Dentists and Their Successors

By Burton Lee Thorpe, M. D., D. D. S., St. Louis, Mo.

The evolution of the science and art of dentistry is second in magnitude to no other profession in the scientific world.

In the onward march of professional progress it is well to review the results accomplished in the past and think of the men who have been the real makers of dental history; they who have made smooth the road we now travel. These men had to overcome the early prejudices of the public and the jealousies of their fellow craftsmen, but by honest endeavor and professional pride they succeeded in placing dentistry in the sphere to which it belongs—lifting it from the vocation of the barber, blacksmith and charlatan tooth-tinker, to that of the high and honored calling of artist, scientist and healer.

The object of this series of historical sketches of the forefathers of dentistry and their successors, is to give an authentic biography of men who have been both pioneers, patriots and pathfinders in early days, from the birth of the profession, down through the years, that we of the present time, and those to follow, may have a clear conception of their environments, their sacrifices, and also the great good they accomplished.

Thomas Carlyle has tritely said: "In all epochs of the world's history we shall find the great man to have been the indispensable savior of his epoch—the lightning without which the fuel never would have been burnt. The history of the world was the biography of great men."

These words are applicable to the dental profession. Tradition and facts are both correct, that the early practitioners of our craft were the barber, blacksmith and traveling tinker, who crudely practiced the dental art as a "side line" to their respective callings. This continued from the time of Christ until about 1839, when, by the process of evolution a few men follow-

ing the calling of dentistry realized the needs of converting the craft into a profession. About this time "the great men," who have since proven to be the saviors of American dentistry, and eventually have influenced and developed the dentistry of the world, appeared in form of Horace H. Hayden and Chapin A. Harris, both ripe in years of practice and possessed with the ambition to better their chosen calling. Their efforts were ably seconded by such men as Eleazar Parmly, Solyman Brown, Amos Westcott, Elisha Townsend and others, who were masters of more talents than simply being skillful dentists. To know our profession's history one must be familiar with the biography of our great men, who, by their personality and manifold talents, brought our calling out of chaos, divorcing it from a trade and marrying it to a science.

No matter what a man's work, he must have some recreative diversion, some fad or hobby, before he can be considered a broad-minded, well-informed man. Some one has said, "Before a man knows his own language he must master another." President Woodrow Wilson, of Princeton, has well said that "We judge the range and excellence of every man's abilities by their play outside the task by which he earns his livelihood. Does he merely work, or does he also look abroad and plan? Does he, at least, enlarge the thing he handles? No task, rightly done, is truly private.

"It is part of the world's work. The subtle and universal connections of things are what the truly educated man, be he man of science, man of letters, or a statesman, must keep always in his thoughts, if he would fit his work to the work of the world. His adjustment is as important as his energy." William Wordsworth, that poet of nature, said: -

"The world is too much with us; late and soon,
Getting and spending we lay waste our powers;
Little we see in nature that is ours—
We have given our hearts away, a sordid boon."

The really great men in dentistry had other things outside of their profession with which they garnished their talents, and that, as a recreative diversion, took their thoughts off the monotony and humdrum of "shop."

They would have been great in any other walk of life; they would have illumined any other calling.

Besides being great dentists, some have been famous as scientists, artists, musicians, sculptors, orators, naturalists, poets, actors, soldiers, philanthropists and humanitarians. Had they devoted equal time to any calling that

they did to dentistry, who can question that they would have been equally accomplished in other arts as they were in dentistry?

Nearly all the men who stand out pre-eminent had some other line of work as a fad or hobby, in which they excelled, that made them better citizens and greater ornaments to the profession. To view "the other side" of their lives is of more than passing interest. To know what we are, we must realize from whence we, as a profession, came. In the following sketches it is the writer's object to present these men from "the other side," viz., the artistic side, that has illumined their careers, both personally and professionally as well as to recite their professional accomplishments and contributions.

It is hard to determine just who was the first to practice the dental art in America. Isaac Greenwood, a native of Boston, is credited as being "a mathematical instrument maker, ivory and wood turner, umbrella manufacturer and dentist" in Boston about 1750, following all these professions at the same time. Record also says "he made the first electrical machine for Benjamin Franklin." It is probable he carved some crude artificial substitute for the lost human teeth out of hippopotamus and other bone substances, as also did Paul Revere, the Revolutionary hero, who was a Boston gold and silversmith. Early professional records say that in October, 1766, Mr. Robert Woofendale arrived in the United States, that he was an educated dentist, having been instructed by Mr. Thomas Berdmore, a dentist to George III. He practiced in New York and later in Philadelphia. In the "*Pennsylvania Chronical and Universal Advertiser*," April 6, 1767, the following advertisement appears:

ROBERT WOOFENDALE,

Lately from London, but last from New York, Surgeon Dentist, (who was instructed by Thomas Berdmore, Esq; operator of the teeth to his Britannic Majesty) begs leave to inform the public, that he performs

ALL OPERATIONS ON THE TEETH,

gums, and sockets; likewise fixes in artificial teeth, so as to escape discernment, and without the least inconvenience.

N. B. He may be spoke with at his lodgings at Mrs. Hunt's opposite Mr. Roberdeau's, in Second-street.

Philad. April 6, 1767.

This with the wording slightly changed appeared until June 22, 1767.

Meeting with little encouragement he returned to England March, 1768. While in New York he made a double set of artificial teeth for Mr. Wm. Walton of New York City. This is believed to be the first record of a full set of

teeth made in America. For quite a period no record of practicing dentists is to be found until 1776, an account of one Mr. Whitelock or also spelled Whitlock, also a man by the name of Baker, who was claimed to be "the first person ever known as a dentist in Philadelphia." Little record is found of these men and no authentic record is to be found until the coming of *Joseph Lemaire*, whom we may safely denominate *The first regular American dental practitioner*.

LEMAIRE.

PATRIOT AND PIONEER SURGEON-DENTIST.



Jos. F. J. LeMaire

The first of the real heroes to be considered is Joseph Jean Francois Le-maire (also spelled LeMair and LeMayeur)—revolutionary patriot and pioneer surgeon-dentist—born at Mayenne, France, 1752.

After completing his studies at the medical school in Paris, he devoted himself to the study of dentistry in that city. The rich red blood of patriotism flowed in his veins and inspired him to come to America with the French fleet, under the command of Count Rochambeau, to assist in our struggle for independence. He arrived July 12, 1780, and landed at Newport, where he be-

gan surgical and dental practice on this side by working for the officers and others of the allied armies.

Lemaire was an intimate friend of the Marquis de Lafayette, who spoke highly of his ability as a surgeon.

During time of battle he was in the thick of the fight and bravely opposed the British forces. While the American and French armies were in winter quarters in 1781-82 in the vicinity of Providence, Rhode Island, half clad, half fed, and suffering all the aches and pains the flesh is heir to, incident to neglect and exposure, Joseph Lemaire labored faithfully to relieve his comrades in arms and the residents of the adjoining country of their dental and other pains.

Dr. Horace H. Hayden in an article on early dentistry in the first series of *The American Journal of Dental Science* writes: "The first hints that were afforded or opportunities offered to any person to obtain a knowledge of the profession were, we believe, through Lemaire."

During the winter of 1781-82, Dr. Lemaire tutored two fellow patriots in the art of dentistry. One a fellow-countryman, James Gardette, aged twenty-five; the other an American, Josiah Flagg, eighteen years of age, both of whom afterward proved a credit to American dentistry.

After the close of the Revolutionary War he gave instruction to a Mr. Spence and several others. He was the first and original American dental preceptor and his coming marked the commencement of dentistry as a profession in America.

Lemaire's skill tended toward surgical work and his main specialty was the transplanting of teeth, which operation he introduced in America. Record states that he was unsuccessful with this operation during the time of the war, owing no doubt to the poor state of health of his patients, from exposure. In the winter of 1781-82 record further states Lemaire "transplanted over one hundred teeth and not one succeeded."

At the close of hostilities he went to New York, where he remained but a short time. He located in Philadelphia in 1784 and advertised that "six months previous he had successfully transplanted one hundred and twenty-three teeth" and that he also "carved artificial teeth from blocks of ivory."

Another announcement of Lemaire's reads as follows: "Doctor LEMAIRE, DENTIST, who has been so successful in transplanting of TEETH in New York, proposes to be in Philadelphia the latter end of September, where he will remain some time. The time of his arrival and the place of his abode will

be advertised in the newspaper."—*Pennsylvania Gazette*, September 8-15-22, 1784.

In "Watson's *Annals of Philadelphia*" we find stated: "Dr. Lemaire had great success and went off with much of our Patricians money."

In 1784, Lemaire inserted an advertisement in a Philadelphia newspaper offering "two guineas each for sound teeth to be obtained from persons disposed to sell their front teeth or any of them." These teeth were used on plates and to be transplanted. It is also recorded that "several respectable ladies had them (their natural teeth) implanted" and they were, in some cases "two months before they could eat with them."

He practiced in Philadelphia until the fall of 1786 and then went to Baltimore, where he remained in practice a year or more. His former student, James Gardette, writes in the *Philadelphia Medical Recorder* in 1827 "Mr. Lemaire, with the reputation of an eminent dentist, had transplanted one hundred and seventy teeth in this city, in the course of the winter of the years 1785 and 1786, as he told me himself, at Baltimore, in the fall of the last-mentioned year: and that of all these transplanted teeth not one succeeded! Some became firm and lasted, more or less so, for two years, in the sockets in which they had been inserted: but those cases were very rare."

Characteristic of his nationality he was possessed of a genial nature and was regarded by the citizens of Philadelphia as a courteous and cultured gentleman, eminently proficient in his calling.

In 1787 Lemaire returned to his native land and resumed the practice of dentistry at Paris, where he was known as a studious investigator and painstaking workman. It was here he developed his latent talent for writing and contributed some valuable works to the profession's literature.

In 1812 he wrote and published his first work, "The Ladies' Dentist," other editions of which were published in 1818-1824-1833.

In 1816, "A Manual on the Anatomy and Physiology of the Teeth."

In 1821, "A Natural History and Diseases of the Human Teeth," a translation from the English work of Joseph Fox.

In 1822-24, "A Treatise on Dental Physiology and Pathology."

Some writers have stated that Lemaire was the first practicing dentist in America. This statement is erroneous, owing to the fact that (Robert) Woofendale an English dentist, arrived in 1766 and divided his time between New York and Philadelphia, where he practiced twelve years before Lemaire's coming. There is also record of other dentists about Lemaire's time Isaac Green-

wood of England, located at Boston and one Whitlock, also from England, arrived and practiced in the New England colonies.

When Lemaire located at Philadelphia in 1784 he found practicing there a dentist of the name of Baker, "the first person ever known as a dentist in Philadelphia." Historical facts are so meager and confusing regarding this matter that it is impossible to tell the exact time each of these early practitioners arrived.

The death of Lemaire occurred at Maisons-Alfort, France, 1834 and closed a well-rounded career of usefulness. His name will live in dental history as patriot and pioneer surgeon-dentist, whose emigration marks the beginning of dentistry in America and also as being the first American Dental preceptor.

JOSIAH FLAGG.

SOLDIER, SAILOR AND FIRST NATIVE-BORN AMERICAN DENTIST.

Much has been written that is not true regarding the forefathers of dentistry, and much has been left unwritten. Many times tradition or legend in history have taken the place of facts. The following facts are from notes and memoranda copied from the family records, now in possession of the descendants of the subject of this sketch.

Josiah Flagg was born in Boston, Massachusetts, in 1764. He was a son of Lieutenant Colonel Josiah Flagg of Elliott's Regiment of the Continental Army, and at the age of 15 years enlisted, as a private, in his father's regiment, which did much for the cause of American Independence during the Revolution.

In the winter of 1781-82 this regiment together with the French troops of Count Rochambeau, camped near Providence, Rhode Island. It was here Josiah Flagg was introduced, by his father, to Joseph Lemaire, the French surgeon-dentist, and obtained from Lemaire instruction in dentistry.

Following his honorable discharge from the army in 1782, he began the practice of his profession, at first as an itinerant, until 1783, when he located at Boston, where he practiced with success until 1812.

Dr. Flagg believed in letting the public know he was equipped in all departments of his art. While practicing in Boston, in 1785, he issued an advertisement which states: "Dr. Flagg transplants teeth, cures ulcers and eases them from pain without drawing; fastens those that are loose; mends teeth with foil or gold to be as lasting and useful as the sound teeth, and without pain in the operation; makes artificial teeth and secures them in an independent, lasting and serviceable manner. Sews up hare-lips, and fixes gold roofs and palates, greatly assisting the pronunciation and the swallow. Cuts the defects from the teeth and restores them to whiteness and soundness without saws, files, acids and such abusives as have shamefully crept into the profession, and which have destroyed the confidence of the public. Sells, by wholesale and retail, denti-



Johann Georg

In later years he published a circular as follows:



DIRECTIONS by DR. J.
FLAGG, to use his DENTIFICES,
or TINCTURES, (*viz.*) Use Cold
Water, and a Brush, every day after
rubbing the Gums hard with your

~~finger to make them bleed what you can. Rinse them~~
clean with Cold Water, holding the water in your mouth
untill the keenness of the air is off before you apply it to
your teeth: After which use with the Brush the war-
ranted and approved Antiscorbutic *Tincture*

But not rinse it off for some time: ——— It may be used
every day for the first week or ten days, and once or twice
a week afterwards at discretion: ——— When once in
good order, there is no further need of a DENTIST or
Medicine. — N.B. Fear not the stiffness

*of the brush;— And if your Tincture
is too potent for the gums, add to it
Port Wine to your liking; But
not mix the whole in the Tinct.* —

To Mr. J. Green.

Joseph Flagg

May, 1765



JOSIAH FLAGG,

Surgeon Dentist.

Informs the public, that he practises in all the branches, with improvements. [i. e.] Trai-
 plants both live and dead Teeth with greater convenience, and gives less pain than heretofore
 practised in Europe or America :---Sews up Hare Lips :---Cures Ulcers :---Extracts Teeth and
~~stumps, or roots with care~~ :---Reinstitutes Teeth and Gums, that are much depreciated by nature,
 carelessness, acids, or corroding medicine :---Fastens those Teeth that are loose : (unless wast-
 ed at the roots), regulates Teeth from their first cutting to prevent heavers and pain in Chil-
 dren :---Assists nature in the extension of the jaws, for the beautiful arrangement of the second
 Set, and preserves them in their natural whiteness entirely free from all scorbutic complaints---
 and when thus put in order, and his directions followed, (which are simple) he engages that
 the further care of a *Dentist* will be wholly unnecessary :---Eases pain in Teeth without draw-
 ing :---Stops bleeding in the gums, jaws or arteries :---Lines and plumbs Teeth with virgin
 GOLD, FOIL, or LEAD :---Fixes Gold Roofs and Palates, and artificial Teeth of any quality,
 without injury to and independent of the natural one : greatly assisting the pronunciation and
 the swallow, when injured by natural, or other defects. ---A room for the practice with
 every accommodation at his house, where may be had Dentifrices Tinctures, Teeth and Gum
 Brushes, Mastics, &c. warranted approved and adapted to the various ages and circumstan-
 ces :---Also Chew-sticks, particularly useful in cleansing the fore Teeth and preserving a natural
 and beautiful whiteness ; which Medicine and Chew-Sticks are to be sold wholesale and re-
 tail, that they may be more extensively usefull.

••• Dr. FLAGG, has a method to furnish those Ladies and Gentlemen, or Children with
 artificial Teeth, Gold Gums, Roofs, or Palates, that are at a distance and cannot attend him
 personally.

CASH Given

for Handsome and Healthy Live TEETH,

No. 47, Newbury-Street, BOSTON, (1796.)

Original Copy of Josiah Flagg's Advertisement.

frices, tinctures, chew-sticks, mastics, teeth and gum brushes, suitable for every age, complaint and climate, with directions for their use."

From the foregoing record we are led to believe that Flagg was one of the first to use gold foil in the filling of teeth in the United States, and also one of the first oral surgeons of his time. He possessed much mechanical ability and was recognized for his ingenious methods in operating. Credit is given him for being one of the earliest "to drill into the pulp cavity to relieve distress caused from a dead pulp." This operation was at that time called "pulp tapping."

At the beginning of the war of 1812 Flagg's patriotism got the better of him and he enlisted in the naval service, shortly after to be captured by the British and taken to England as a prisoner of war. While on parole he practiced dentistry in London during 1813-14 and 15.

In England he made the acquaintance of the distinguished surgeon, Sir Astley Cooper, and in pursuit of farther knowledge of his profession and the desire to master the methods of instruction used by the medical teachers of London he frequently attended the lectures and clinics of Sir Astley Cooper at Guy's Hospital.

On one of these occasions, Sir Astley having failed in the attempt to extract a bicuspid root turned to Mr. Flagg, who was with him on the platform, and said, "Perhaps our American friend, who is a skillful dentist can assist us in this dilemma." Flagg arose bowing to the teacher and the class, as he produced from his pockets a graver (such as is used these days by jewelers who do engraving) his favorite tooth extracting instrument, which he thrust between the root and the alveolus so deftly that the obdurate root flew from its socket half across the room. Prof. Cooper was astonished. Thanking Mr. Flagg he said to the class, "Gentlemen, that was a marvelous feat, a most marvelous feat."

When the lecture was finished, Sir Astley again thanked Flagg for his skill and asked him to accompany him to a friend, who was a portrait painter, as he wished to have his likeness painted.

The print that illustrates this sketch is from that water-color painting and shows Flagg with his graver in hand. Had it not been for the suggestion of Sir Astley Cooper, we would not have had an authentic likeness of Josiah Flagg, as a traditional miniature of 70 or 80 years ago, said to be in possession of an aunt then 70 or more years old, has disappeared.

Josiah Flagg was a giant in intellect, skill and stature. He was much above the usual height, massive, weighing over three hundred pounds, yet well pro-

portioned and graceful in his movements. He had a kind, jovial disposition and was a gentleman in all the word implies. His ready wit and humor made him appreciated wherever his lot was cast.

At the close of the "War of 1812" he returned to his native land and a few hours before his expected landing was shipwrecked in New York harbor; he reached his home in Boston suffering severely from the results of his exposure. His strength gradually failed and as winter approached, hoping a warmer climate would benefit him he went to Charleston, S. C., where, a few days after his arrival, he contracted the yellow fever, which prevailed at that time, and there died September 30, 1816, aged 52 years.

In 1797 he married Eliza Brewster, a descendant of the sixth generation, in direct descent, from Elder William Brewster of the "Mayflower" 1620. He was father of two sons, the eldest, Dr. Josiah Foster Flagg of Winter St., Boston, one of the early makers of porcelain teeth, and author of "The Family Dentist," 1822. The second son was Dr. John F. Brewster Flagg, inventor of the lateral vacuum cavity for dentures, and first professor of anatomy and physiology in the old Philadelphia College of Dental Surgery, chartered 1850 (which failed and was reorganized as the Pennsylvania College of Dental Surgery in 1836). This same Dr. John F. Brewster Flagg was the first to expose Morton's so-called "New Compound Letheon," and proved it to be nothing but sulphuric ether, which he administered experimentally as an inhalant without ill results, and protested that it was not patentable.

The late Prof. J. Foster Flagg of "New departure" fame, son of Dr. John F. Brewster Flagg and grandson of the subject of this sketch, was the last dentist of his branch of the family.

Josiah Flagg was also a great grand-uncle of Dr. Eben M. Flagg, of Philadelphia. Josiah Flagg undoubtedly was the first native American to make dentistry his life's work and the first to carry to any foreign land evidence of American dental progress. Josiah Flagg builded better than he knew. From his time to the present they of the name of Flagg have been prominent in American dentistry. They have stood holdly for advanced methods, for new departures and the ideals they believed to be the best for the profession's good. Much does American dentistry owe to the name of Flagg.

The writer acknowledges his indebtedness to Dr. J. Foster Flagg and Dr. William H. Trueman for information regarding this sketch.

JAMES GARDETTE.

SURGEON-DENTIST.

The two dominant national characteristics of the Frenchman are his love of liberty and fondness for adventure. These were incentives, no doubt, that caused many natives of France to come to America during the Revolutionary War. Many of those thus inspired proved their valor in time of war and at the close of hostilities permanently located here and proved useful and substantial citizens, imbued with love for their adopted country and all its institutions.

James Gardette, second son of Jean Blaize Gardette, was born August 13, 1756, in the village of Agen, department de Lot at Garonne, France.

His father died in his early youth, leaving him without means of support. His paternal uncle, Blaize Gardette, a prosecuting attorney of Agen, gave him a home and an education with the intention of fitting him for the career of a naval surgeon. After an academic course, he was sent to Paris, in 1773 remaining two years studying anatomy and surgery at the Royal Medical School. During his college course, he received instruction in dental operations from Mr. LeRoy de la Faudiniere, a dentist of high repute, of Paris. (At this time such instructions were a part of the naval surgeon's requirements.) He studied the works of Fauchard and Bourdet, both recognized authorities of that time, and equipped himself with an outfit of operating instruments. Completing his college course he was sent to the Hospital at Toulouse, where he remained eighteen months as student and interne. From there he went to Bayonne, where he took the examinations conducted by the surgeons of the Admiralty with successful results and was commissioned a surgeon in the French Navy.

He immediately entered the service and began his professional and naval career (which was short) on board the warship *La Barquaize de St. Jean De Luz*, which sailed for America cargoed with French soldiers, October, 1777, and arrived at Plymouth, Massachusetts, early in January of the following year. During this voyage occurred an engagement with two British ships last-



J. S. Gardette

ing three hours and a half, in which several were killed and wounded on board the vessel of which young Gardette was surgeon.

Upon his arrival at Plymouth, he resigned from the Navy and the first record of his dental operations is at Newport. Here he met Joseph LeMaire from whom he received additional instructions in dental surgery. His son, Dr. Emile B. Gardette, in an obituary sketch of his father, says: "When the French fleet and army arrived at Newport, he was induced to visit that town, and commenced practice as a dentist, the officers affording him considerable occupation for a short time." He later returned to Boston, probably having done all the professional work needed by his countrymen at Newport. In the autumn of 1788 he went to New York. "He was there when the American Army, under General Knox, took possession of the city—an inactive but not indifferent spectator of the great events of that interesting epoch in American history."

In the spring of 1784 he located in Philadelphia, where he found several dentists who had preceded him, among whom were Dr. Andrew Spence (who advertised that he was "educated under his uncle, the late Dr. Thomas Spence, Dentist to his Britannic Majesty, King George the Third"), Messrs. Baker, Clabeau, Gilliams, and others.

In the files of the *Philadelphia Journal and Weekly Advertiser*, April, 1784, may be found his introductory professional announcement as follows:

"Mr. Gardette.

Surgeon-Dentist, lately from Paris.

Begs leave to inform the ladies and gentlemen that he makes artificial teeth (which imitate the natural) from a single tooth to whole set, and places them, without the least pain, so regular, that it is impossible to distinguish them from the natural ones, and in such a manner, that the persons may take them out and fix them again themselves with the greatest ease; he can place them over stumps, if the person dont chuse to have them drawn. He also takes the scales or tartar from the teeth without pain, and renders them (by help of a powder that he composes) as clean and as white as ever.

"As he proposes to settle in this city, and to perform on very reasonable and moderate terms, he hopes to recommend himself to the notice and confidence to such as have occasion for his assistance, and wishes for an opportunity to make himself as extensively useful in his profession, as he flatters himself his abilities entitle him to expect.

"He may be spoken with at the east-side of Front-street, half way between Race and Vine-streets, where the Wax-Work is kept.

"N. B.—And if any Ladie or Gentleman wishes to have him come to their houses, he will be ready to wait on them on the shortest Notice."

It will be seen from the foregoing that he came to Philadelphia to stay. He proposed to settle in the city, probably moved to do so from the fact that at that time Philadelphia was the metropolis of the country. It was indeed its commercial center, and moreover contained a large contingent of Mr. Gardette's countrymen.

He devoted himself studiously to his professional work and became proficient far above the average operator of his day. His inventive genius made for him a wide reputation at home and abroad. In 1822 he was awarded a medal and twenty dollars by the John Scott Legacy in recognition of three valuable improvements in his profession, the mortise method of attaching natural teeth to plates, flat elastic clasps for retaining plates in position and for an instrument for extracting teeth. The John Scott Legacy is a fund left in trust by a merchant of Philadelphia for the encouragement of useful inventions in the arts and sciences. The above award is the highest permitted by the founder of the legacy, and was a marked recognition of his skill and ingenuity.

L. Laforgue, dentist and writer of Paris, says in his "*Theorie et Pratique de l' Art du Dentiste*," second edition 1810:

(Translation):

"The plan of maintaining artificial teeth by means of ligatures is almost entirely done away with by Gardette of Philadelphia; he secures artificial pieces without tying them, even when of limited extent. I have seen such admirably secured and am acquainted with no dentist who equals him in his beautiful and valuable description of work."

Gardette also invented the "gold mortise plates," a method of securing teeth with gold pins, permitting the tooth to rest on the gum tissues instead of on the gold plate. He was one of the first to advocate extraction in youth, to afford space for arrangement in crowded mouths, thus obviating lateral decay. He was an early advocate of gold foil instead of lead or tin as a filling material and at one time prepared his own foil by beating it from Dutch ducats.

Gardette has been credited with being the first to apply the principle of atmospheric pressure or suction retention to full dentures. This claim is not founded on fact as Fauchard in the second edition of his work, "*The Dentist*," 1746, mentions this method. It has also been claimed that he was the first to swage gold plates, but this statement is also erroneous.

Gardette enjoyed the friendship of several eminent medical men of this day.

Among them was Drs. Benj. Rush, Wistar, Kuhn and Shippen, who encouraged and aided him in his labors.

His literary work was meager, owing no doubt to his difficulty in expressing his views in the English language. His friend, Dr. James Mease, induced him to publish, January, 1827, in "The Medical Recorder," an article giving his views on "The Transplantation of the Human Teeth," the first and only work from his pen on record. In this paper Gardette opposes the practice of transplanting teeth.

By education and address Gardette was a polished gentleman, and by his cleverness of manner and excellent skill, both in operative and mechanical technique, he established a lucrative and uninterrupted practice as a dentist from 1784 to 1829, a period of forty-five years but like others who have followed him, his old age was full of disappointment caused by unfortunate investments.

In 1829 he returned to his birthplace, Agen, France, where he remained a short while and then took up his residence in Bordeaux. In letters to American friends he expressed his desire to return to America, but before this wish was gratified he died of gout, August, 1831, aged 75 years. James Gardette was probably one of the most ingenious and dexterous dentists of his time. His true worth cannot be well overestimated. He is one of the few whose past good work is like a signal light on the sea of time.

JOHN GREENWOOD.

SURGEON-DENTIST TO HIS EXCELLENCY, GEORGE WASHINGTON.

The bearers of the name Greenwood have long been familiar in American dental history. They were at the profession's inception and did their part to place it on a solid foundation.



*I Greenwood Surgeon Dentist
to his Excellency George Washington
late Pres^t of the U. S. A.
No. 125 opposite the Park New York
near the Theatre.*

The first of the family, Nathaniel Greenwood, by occupation a shipbuilder, emigrated from Norwich, England, arriving at Boston, 1650, where he followed his calling, married and was the father of two sons (Isaac and Samuel) and died 1685.

Isaac was the first professor of mathematics and natural philosophy in

Harvard College, and also later in life pastor of the congregation of the famous old North Church of Boston and father of Isaac, Jr., whom Dr. Chapin A. Harris refers to as "the first practical dentist in Boston."¹ He is also credited with being (1750), "a mathematical instrument maker, ivory and wood turner, umbrella manufacturer and dentist, following all these occupations at the same time in Boston." This is quoted from a son of John Greenwood, who received his information, he says, from his Uncle Isaac. He further says: "I presume his practice was confined to the mechanical portion, although in his portrait (large as life), taken some time after this, he is depicted with his left hand and arm resting upon an open volume of "Hunter's Treatise upon the Human Teeth'"²

A paragraph in an account of the "Boston Massacre" of March 5, 1770, published in the *Boston Gazette and Country Journal* of March 12, 1770, stating that "Samuel Maverick, an apprentice to Mr. Greenwood, ivory turner, received during that unfortunate affair a mortal wound," has been quoted as evidence that Mr. Greenwood was then in dental practice at Boston, on the presumption that the vocation of ivory turner included that of dentist.

To Isaac five sons were born, four of whom, John, Clark, William Pitt and Isaac, were instructed by their father and followed his calling, as dentists.

The subject of this sketch was born at Boston, Massachusetts, May 17, 1760. He received a meager common school education at the North School of Boston, until he reached the age of thirteen, when he was apprenticed to learn the trade of cabinet-maker with his uncle, Thales Greenwood, at Portland, Maine. Two years later England declared war against our colonies. A contagion of patriotism swept over the country and each able-bodied colonist who loved home, liberty and free speech, hastened to the front, there to shoulder the musket or seize the sword and give his life, if necessary, on the altar of independence.

Young Greenwood was one of the first to enlist. May 3, 1775, finds him a member of Capt. Theodore Bliss' Co., of the 26th Regiment, as a fifer, enlisted for eight months at eight dollars a month.³

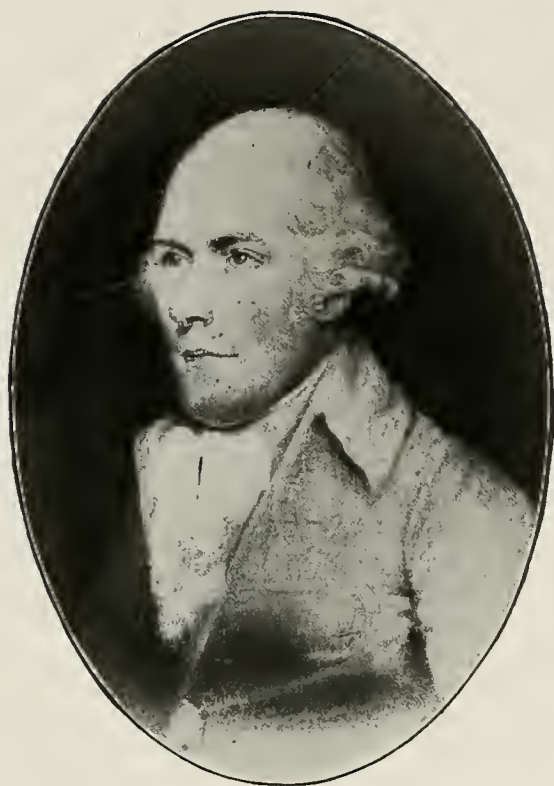
At the expiration of the time of his enlistment he continued to follow the fortunes of the army, but was not on the pay roll until he re-enlisted, Feb. 13, 1778, in Capt. John Hinkley's company of the command of Major-General Heath, of Boston.

At Bunker Hill, Charleston Mills, with General Issaac Putnam; with

¹ Harris Dictionary of Dental Science (1849), p. 333.

² Dental Register of West, Vol. V, January, 1861, p. 33.

³ Massachusetts Soldiers and Sailors of Revolutionary War, Vol. IV, p. 189.



John Greenwood

General Benedict Arnold in his invasion of Canada, fighting the Indians and British, enduring hardships, exposure and dangers without number; with General George Washington, the winter's morning he surprised the Hessians at Trenton, Greenwood was at all times in the thick of the fight doing his duty for the cause he loved.

The day following the battle of Trenton he received three months' pay, and, worn with fatigue and sickness caused from exposure, he concluded to quit the service, although he was promised promotion from fife major to ensign, and assured by his fellow officers that he was the soul and wit of his company, and that he enjoyed their respect and confidence.

After a rest of two or three months, his roving disposition conquers him, and we find him leaving Boston as a midshipman on the privateer "Cumberland," commanded by Commodore Manly, bound for a cruise to the West Indies, with a crew of one hundred and thirty men, carrying eighteen six-pound guns. The sea career of Greenwood, as recited by himself in his memoirs (that read like the thrilling tales of Captain Kidd's adventures), which were never finished on account of his sudden death, are flavored with even more daring escapades than his army career.¹

While on this cruise, off Barbadoes, the "Cumberland" was pursued and attacked by the British frigate "Pomona," which, after an exciting chase, captured the "Cumberland," put Greenwood and the balance of the crew in irons, and three days later arrived at Barbadoes, where all were imprisoned for five months. Upon release, Greenwood procured passage on a brig bound for Piscataway, where he landed, and was given "a hogshead of molasses to pay my expenses from thence to Boston" by the kindly disposed captain. Hoarding his money, he walked sixty miles to Boston, the home of his parents, where, after recovering from a long and dangerous sickness, he became restless for adventure and again entered the seaman's service, November, 1779, as master-at-arms of a ship that carried one hundred and fifty men and twenty-eight six-pounders, and was mastered by one DePorter, bound for the West Indies.

Off the Island of Jamaica three vessels were captured and carried as prizes to Port-au-Prince, as was also a Spanish pirate schooner, which DePorter manned with part of his crew and placed Greenwood second in command. This vessel captured, as prizes, eleven brigs and sloops, besides one ship of eighteen guns, but soon after, when pursued by British ships, ran on the rocks in Petit Guave harbor, sunk and was lost, with everything on board, save the crew, which escaped.

¹ American Journal of Dental Science, Vol. I, 1839, pp. 73, 97, 113.

After numerous trying adventures, destitute and worn with hardship, Greenwood worked his way to New York, where he applied to his brother, Clark, then practicing as a dentist in that city. His appeal for aid was in vain. Being refused by his brother, and possessed with a natural mechanical skill, he began business in a small way as a maker of mathematical instruments. To this business he later added and applied his skill as an ivory turner.

A physician, Dr. Gamage, of New York, asked him to extract a tooth for one of his patients; he was successful in the operation, and this success was the beginning of his professional career. His fame rapidly spread and his services were so much in demand that he employed his brothers, Clark (who had previously refused him assistance when in need), and William Pitt, as assistants.

As his practice increased so did his skill, and he courageously entered the surgical field, and was the first to treat a diseased maxillary sinus by perforating its cavity from the socket of an upper molar tooth and effect its cure.

In cases of abscessed antrum caused by alveolar abscess, to remove the muco-purulent secretion, he used "suds made from tepid soft water and old castile soap."

During his New York residence (1790 to 1820), Greenwood was called upon to construct for General George Washington full upper and lower dentures, the upper said to be carved from a block of ivory of the tusk of a hippopotamus with the teeth riveted to it with small gold rivets and the lower plate and teeth carved together from a solid block, both dentures being secured by means of spiral springs. At the present time this work would be crude, but Washington, having previously tried other dentists, found Greenwood's work most comfortable compared with the other dentures he had worn. Greenwood in the following letter gives instruction to Washington regarding care of his plates:

"New York, Dec. 28, 1798.

"Sir: I send you enclosed two setts of teeth, one fixed on the old bars in part, and the sett you sent me from Philadelphia, which, when I received, was very black, occasioned either by your soaking them in port wine, or by your drinking it. Port wine being sour takes off all polish and all acid has a tendency to soften every kind of teeth and bone. Acid is used in coloring every kind of ivory, therefore it is very pernicious to the teeth. I advise you to either take them out after dinner and put them in clean water and put in another sett, or clean them with a brush and some chalk scraped fine. It will absorb the acids which collect from the mouth and preserve them longer—I have found another and better way of using the sealing-wax when holes are eaten in the



Edward Hudson

began and so cruelly crushed in 1789." These societies developed the young men and brought out the latent talent of each. Hudson soon gained recognition as a debater and writer.

Filled with the fire of youth, and of patriotism, inspired by the political strife and the turmoil that enveloped Ireland at that time, Hudson was drawn into the "Emmet conspiracy" with Robert Emmet, Thomas Moore, Thomas Addis Emmet, Arthur O'Connor, and other acquaintances of "United Irish Conspiracy" fame. About this time he arranged to go to London to establish himself in the practice of his profession, but his affiliations and utterances caused his arrest.

Hudson was a Protestant, as were all these leaders, and was one of the thirteen delegates seized March, 1798, at Oliver Bond's and for this political offense was imprisoned with his comrades in Kilmainham jail. During this imprisonment, which lasted four or five months, hearing of friend after friend being put to death and expecting daily for his time to come, to amuse himself in his solitude, and to relieve the tedium of those anxious days, he made a large drawing with charcoal on his prison wall, designed to illustrate a crisis in the story of Saint Cecilia, a religious romance of the fourth century inculcating the virtues of celibacy. The heroine, a Roman virgin betrothed to a youth, Valeria, arrayed herself in sackcloth, fasted, and invoked the saints and angels to guard her virginity. When Valeria called to claim his bride, as a ruse she sent him to the Pope, that under his instruction he might be converted from idolatry and unite with the church, so that they would not be unevenly yoked together. On his return, having complied with her desires, he found her in her chamber praying, guarded by an angel with flaming wings. It was this scene Hudson had portrayed. Thomas Moore, his intimate friend and confidant, also musically inclined, on a visit to the prison saw this drawing, and some years later adopted the suggestion as the leading thought of one of his best melodies, a little poem on "The Origin of the Irish Harp," wherein he has gallantly changed the sex of the recalcitrant lover. The opening lines of the poem follow:¹

" 'Tis believed that this harp, which I now wake for thee,
Was a Siren of old, who sung under the sea,
And who often, at eve, through the bright billows roved,
To meet, on the green shore, a youth whom she loved."

When it was proposed to release the survivors from Kilmainham jail, after

¹ Preface IV Vol. Thomas Moore's Poetical Works.

twelve months' captivity, it was on condition that they should leave for America. To this the American Minister at London earnestly objected on the technical ground that it was an insult to the United States. While they would be welcomed as men, free to go and come, they would be refused a landing as convicts, the government at Washington instructing him that the United States could not be made a convict settlement. With twenty-two other members of the Society of United Irishmen he was taken to Ft. George, Scotland, where he was confined until 1802. During his imprisonment he practiced his calling, serving "the nobility and gentry of the surrounding country," who paid large fees for his excellent skill.

After an imprisonment of four years (being released at the Peace Treaty of Amiens, signed March 25, 1802), he with others was exiled to Holland, a free man, but not knowing how long he might remain one, he immediately embarked for America to try his fortune. Upon his arrival at Philadelphia, about 1803, two years earlier than all other accounts assert¹ he practiced his profession for a short time, and married April 1st, 1804, Maria Bridget, a daughter of Mr. Patrick Byrne, a stationer and bookseller, with whom Hudson engaged in business, soon to fail. He, in 1810, also engaged in the brewing business, and failed, owing to lack of adaption to commercial life and business judgment. After absolute failure in his business ventures, Hudson resumed the practice of dentistry, and passed his remaining days in active professional life in Philadelphia. He was located for many years and at the time of his death, on 133 Walnut Street, near Fifth Street, in a large house on the site now occupied by the Franklin Fire Insurance Company.

He was married three times. His second wife was Maria Elizabeth Bicker and his third wife was Marie Mackie, a daughter of Thomas, a son of Peter Mackie, a well known merchant and importer of Philadelphia. She was the mother of eight children, who bore the name of Hudson. His eldest son, Edward, was a surgeon in the United States army, and died January 23, 1857,

¹ This record is from the James Robinson's Philadelphia directories, which were reliable and standard at that time. Hudson's name is not in the directory for 1802, but in 1803 it appears that he was located at 52 South Third St., old number which would be about Third and Chestnut. In 1806,-7,-8,-9, it reads: "Edward Hudson, dentist, 44 North 5th St.," which would be about 5th and Arch Sts. In 1810 it reads, "Edward Hudson, brewer and dentist, No. 9 Moravian Alley and 44 North Fifth St." In 1811, "Edward Hudson, brewer and dentist, No. 9 Moravian Alley and 133 Walnut St." In 1813 and later, "Edward Hudson, dentist, 133 Walnut St." In this house he died and from it he was buried.

John. Bryant Esq. Dr to B. Hudson
 1817 Nov. Rec^d rendered ——— \$22.⁰⁰
 Extracting tooth for Child at his Home 2.
 1818 June 25- Extracting tooth for Child — 2.
\$26.⁰⁰

Aug 28 one n. tooth - one stuffed } 20
 case & ————— }
\$46.⁰⁰

Rec^d in full

~~Edward~~ Hudson

The following is a bill rendered by Hudson in 1824 (1):

Miss Margaret Callender's acct with B. Hudson
 1824 Nov }
 1825 Dec^r }
 Jan^y }
 ap^l }
 8 Extracting eight teeth - Stuffed
 85 Seventeen cavities with gold
 10 Stopping the cavity of one tooth from
 the end of its root with gold —
 5 Cleaning her teeth - cutting out
 4 four decays -
 Rec^d in full ~~Edward~~ Hudson \$112.⁰⁰

¹ Furnished by Dr. William H. Trueman, Philadelphia.

aged 37. His other son, Francis Smith Hudson, was connected for many years with the United States Coast Survey.

For more than thirty years, Dr. Hudson was a recognized leader of his profession; his talent and skill was an important accession to American dentistry, yet it is not recorded that he made any discoveries of merit or even that he gave freely of his knowledge to his confreres. Dr. Robert Arthur says of him:¹ "Hudson practiced pulp extirpation in 1809 and the filling of the roots of front teeth, to the apex with gold."

Herewith is reproduced a photograph fac simile of a dental bill of Hudson's dated Nov. 28, 1817, in which Hudson charges for "One tooth, one stuffed canal with gold \$20."²

While some claim Hudson to be the originator of root canal filling, such statement is hardly correct, as it is referred to by writers of a much earlier date.³ It was said that Hudson used gold foil of such unusual thickness in filling teeth that he blistered his hand in adapting it to the cavities. In 1818 Hudson called the attention of the profession to the fact that the teeth of drowned persons or persons hanged turned red.⁴

Hudson received, a few years before his death, from the University of Pennsylvania, the honorary degree of Doctor of Medicine. Thomas Moore pays a fine tribute to Hudson's musical attainments and artistic temperament in the preface of the fourth volume of his poetical works when he says: "A young friend of our family, Edward Hudson, the nephew of an eminent dentist of that name, who played with much taste and feeling the flute, and, unluckily for himself, was too deeply warmed with the patriotic ardor then kindled around him, was the first who made known to me this rich mine of our country's melodies—a mine, from the working of which my humble labors as a poet have since derived their sole luster and value." The likeness that illustrates this sketch is from a portrait by Thomas Sully, the famous portrait artist, painted when Hudson was a young man.⁵

Dr. Edward Hudson died after a brief illness "on Thursday morning, January 3, 1833, in the sixtieth year of his age,"⁶ and was buried Saturday, January 5th, in the churchyard of old St. Peter's Church, which church he

¹ American Journal of Dental Science, 1850.

² Furnished by Dr. William H. Trueman, Philadelphia.

³ Bourdet, Vol. I, Chapter III, pp. 114 to 132.

⁴ American Journal of Dental Science, p. 213, Vol. I, 1839.

⁵ Furnished by Dr. Louis Jack, Philadelphia.

⁶ United States Gazette, Philadelphia, Jan. 4, 1833.

and his wife attended during their life. The following is inscribed on his tombstone:

"Edward Hudson, M. D., Dentist. A native of Ireland and for more than thirty years a resident of this city, died January 3, 1833, in the sixtieth year of his age. Distinguished in his native land as an enlightened lover of freedom, he was the confidential friend and fellow sufferer of Emmet and O'Connor. In the land of his adoption, prominent in his profession, his manly virtues and rare attainments won the love and respect of all."

Hudson was succeeded in practice after his death by Dr. Lewis Roper.

Hudson was one of the best educated, most talented and successful dentists of his day; of striking personality and strong personal magnetism. His only living relative writes me: "From the adoring love which the children whom it was good fortune to know, always expressed for him the high regard he seemed to have enjoyed he must have been an admirable man in every way."

His honesty was of the highest type. It is said of him that after his failure in mercantile life he was not content until his creditors were paid in full every cent that was due them, although by law these debts had been settled by payment of a percentage. Dr. Wm. H. Trueman, in a biographical sketch of Hudson, published in *The Dental Brief*, September 1902, says: "What he might have been had his political career been more fortunate, who can say. Truly, man proposes, but a higher power controls. Had weather conditions favored either of Hoche's expeditions, the dismemberment of Great Britain would surely have followed, and not only would Ireland have had, for a time at least, a separate national existence, but much of European history would have been different. Hoche recognized in Great Britain a rival, and a constant menace to the peace of France; he saw in the discontent throughout Ireland an opportunity to destroy her prestige and thereby materially lessen her influence in European affairs. With Ireland nationalized as a republic and friendly to France, England could be compelled to make peace, and would cease to be a disturbing factor on the continent. Hoche was a sturdy republican, with no personal ambitions; his only thought was to secure to his country a rest from the turmoil through which she had lately passed, in order that she might build up her trade and commerce. He was opposed to the erratic ideas of the young Corsican who was just beginning to attract attention by his brilliant military exploits, and confided to Tone his intention of compelling his recall as soon as peace with England was assured. This, Napoleon admitted to O'Meara, his physician, while at St. Helena, Hoche would have been able to do. Had this been accomplished, the Napoleon of later history would not

have been; Ireland would have realized a long-cherished dream; and Edward Hudson, as one of those who helped to bring it about, would have had far greater fame as a patriot and a statesman than he has as a dentist; and would have had a far more imposing monument to his memory than the tombstone marking the grave in old St. Peter's churchyard, Philadelphia."

In summing up Hudson's life work we believe he played the roles of gentleman, scholar, patriot, and ideal professional man with grace and dignity.

CHARLES WILLSON PEALE.

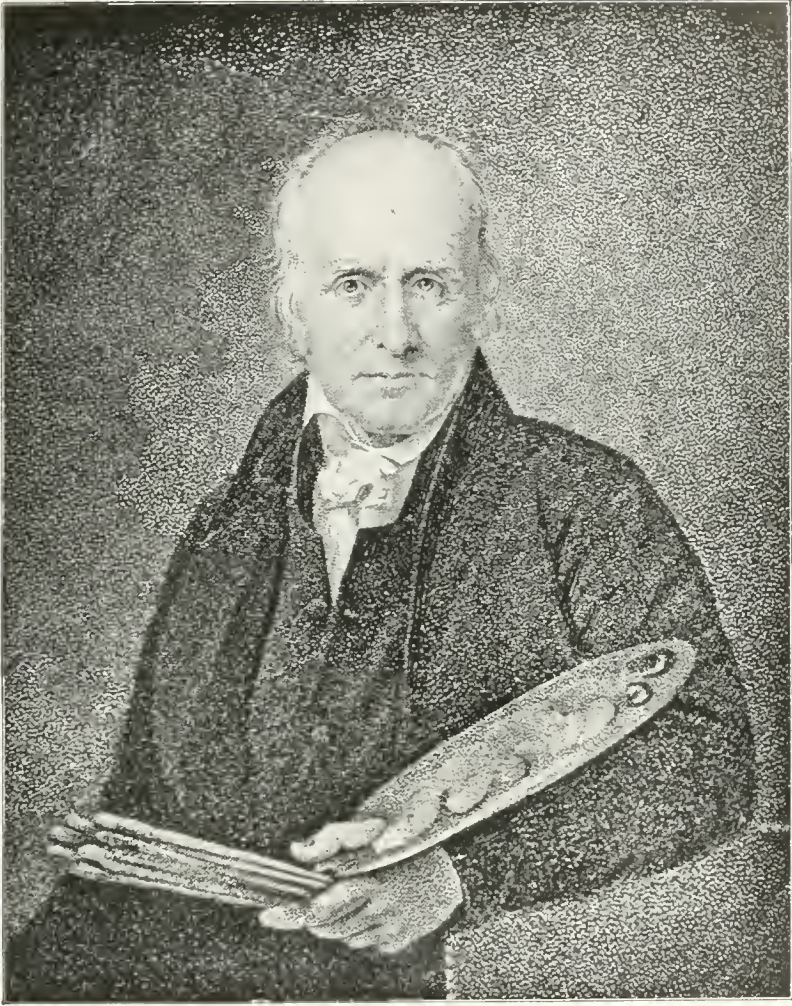
VERSATILE MECHANICAL GENIUS — NATURALIST — TAXIDERMIST — ARTIST —
PATRIOT—AMATEUR PROSTHETIC DENTIST, AND FOUNDER OF THE FIRST
FINE ART SOCIETY IN AMERICA.

The records of Dental History in America would be incomplete without notice of a man who, although not a practicing dentist, has been credited with being an early contributor to a branch of dental art, which American skill and ingenuity developed quickly, and not only brought to a high degree of perfection, but established for it a world-wide standard of excellence. To American dentists is accredited the introduction of many innovations leading toward professional advancement, the most important of which is the excellence in quality, form, color, adaptability and texture of our porcelain artificial teeth. Charles Willson Peale, master of many arts and trades, was closely associated with several, who like himself, were experimenting with porcelain in the endeavor to find an incorruptible and durable substitute for the uncleanly and perishable bone dentures then in use. The final results of these experiments were so generally recognized as superior to all others that they led to this industry centering in Philadelphia. This of itself entitles Peale to a place in the annals of dentistry in the United States, as one of those who assisted in bringing it about.

Charles Willson Peale was born in Chestertown, Queen Anne County, Maryland, April 16, 1741. His father, Charles Peale, was a teacher, a man of liberal education and polite manners.

Charles Willson was, at an early age, bound apprentice to a saddler at Annapolis. The habits of industry acquired during this period continued with him through life, and aided by an indomitable perseverance, and a temperament which seemed to delight in conquering difficulties, commanded success in all that he undertook.

He was married January 12, 1762, to Rachel Brewer, of Annapolis. He lacked about four months of being twenty-one years of age, and she was only seventeen at the time of their marriage. To them were born, in addition to



C. W. Peale

four who died in infancy, the following children: Titian, Raphael, Angelica, Rembrandt, Sophonisha, VanDyke and Rubens. His first wife died in 1790. His second wife was Elizabeth DePeyster, of New York, who died in 1804. To them were born Charles, Linnaeus, Franklin, Sybilla, Titian and Elizabeth. Mr. Peale's third wife was Hannah Moore, of Pennsylvania, a member of the Society of Friends, who died in 1821. Of this marriage no children were born.

For several years after his first marriage he carried on the business of his apprenticeship, but his active inquiring mind would not permit him to devote his whole attention to one trade. He had a natural aptitude for all kinds of mechanical employment, and from making saddles he got to making carriages, then took to making clocks and watches and silver-smithing.

Mr. Peale was truly a rolling-stone; he gathered but little moss, financially speaking, but he acquired fame in more lines than any of his competitors. He was ever ready, if anything suggestive attracted his attention, to investigate, and for the time being to throw into the investigation his whole soul. Thus, having gone to Norfolk to purchase leather, while still a saddler and coach-maker, he casually saw the paintings of a Mr. Frazier and was struck with the sudden idea that he might do as well, although he had no greater experience in painting than what he had acquired in his trade of coach-making. On his return home, provided with canvas, colors, brush and a looking glass, he shut himself up, and soon surprised his friends by painting a landscape, and also a portrait of himself, in which he was represented as holding a palette and brushes in his hand, while a clock was displayed in the background. These efforts possessed sufficient merit to attract attention and favorable criticism and his mind was now wholly bent on painting. He journeyed to Philadelphia to supply himself with some artists' implements and a variety of colors. In the well furnished shop of Christopher Marshall he was bewildered by the variety of colors offered, the names of which he had never before heard, and he repaired to a neighboring book-store where he purchased a work entitled "A Handmaid to the Arts," which he carefully studied before venturing to select and purchase a stock of colors. He then hastened back to Annapolis eager to begin work in his new vocation. He applied to Mr. Hesselius, a portrait painter living near Annapolis, for instruction, taking with him one of his finest saddles as a present. Assisted by the instruction received from Mr. Hesselius, he succeeded in painting the portraits of several of his friends to their satisfaction, and much to the pleasure and gratification of himself, but little to the advantage of the neglected saddlery shop. Forty years later, when the fame of

Charles Willson Peale, the artist, was widespread, the landscape, his maiden effort, was discovered serving a useful purpose as a bag, containing a few pounds of whiting. It had been long sought for, but Mr. Peale could not remember what he had done with it.

In 1768-69 he went to Boston, where he met Mr. John Singleton Copley, the celebrated artist of that city, who received him kindly, permitting him to copy some of his pictures. On his return home he decided that a voyage to England was indispensable if he wished to acquire a proper knowledge of the art, and to merit the name of painter. Shortly after, several gentlemen of Annapolis, interested in the young man, raised by subscription a sum sufficient to carry out his views, the loan to be paid back in portraits. Peale, leaving his young wife and family, proceeded to London. He had a little money, a great deal of confidence and determination, and some letters of introduction to Mr. Benjamin West, then in the zenith of his popularity. He remained in London from 1770 to 1774, studying with West, who kindly invited him to his house when his funds were exhausted. Not satisfied with studying painting while in London he found time to learn modeling in wax, moulding in plaster, painting in miniature, and engraving in mezzotint, accomplishments which proved very useful later in his career.

In 1774, Peale returned to Annapolis, where he found constant employment in portrait painting. Quite early in his career he painted a portrait of Washington, at Mt. Vernon, in which Washington is represented as a young officer in full military costume, mounted upon a prancing charger. This portrait has been generally accepted as an excellent painting, full of life and vigor, and if not the first, is among the earliest Washington portraits painted from life. It is perhaps, the best of the many which Peale painted of this distinguished sitter. Washington early lost his front teeth, and to remedy the distortion of features due to this, and to give the mouth an easy pose (it is said) Peale replaced them with wax. While this restored in some degree the lips to their proper position, the effort to keep these temporary substitutes in place destroyed the natural expression of the mouth. Gilbert Stuart, with the same object in view, is said to have resorted to a like expedient. The effect is seen in the later portraits by Peale, and in those by Stuart. In portraits by others, painted when the General was wearing a clumsily made and ill-fitting denture, the mouth distortion is much more marked and displeasing. When sitting for the portrait painted by Rembrandt Peale he was wearing the very satisfactory denture made for him by John Greenwood,¹ and the mouth in that has

¹ Dental News Letter, Vol. VI., April, 1853, page 189.

a much more natural expression. At a recent exhibition of Washington relics, at the Masonic Temple, Philadelphia, these three portraits were so placed, almost side by side, that one could readily notice this peculiarity; the easy natural pose of the mouth in the Rembrandt Peale portrait gives to it a much more pleasing expression. Washington sat to Peale more frequently than to any other artist. They were often together and he had opportunity to study his features at leisure and under varying circumstances, and being a painstaking workman, he has given to posterity the best portraits of Washington as he appeared at the time they were painted.

Peale's ambition soon led him to seek a wider field than Annapolis afforded, and in 1776 he moved to Philadelphia, then the metropolis of the country. Very quickly, however, he found himself amid stirring scenes, the times were unpropitious for the arts, and, besides, the artist was a patriot. He entered with zeal into the contest then about to begin, taking an active part in the public meetings, being a member of the Committee on Public Safety, and finally raising a company of volunteers, who elected him their captain. He joined Washington and fought gallantly at the battles of Trenton, Princeton and Germantown. The sword did not, however, banish the pencil, and while the captain of volunteers did his duty manfully, the artist found time to paint the likeness of his brother officers. These portraits were the foundation of the gallery of National portraits, which became a notable feature in Peale's Museum "after the war."

One of the best of Peale's portraits of Washington was painted in the building of the American Philosophical Society, on Fifth street, below Chestnut, Philadelphia, at the request of a committee of Congress then sitting in that city. This he engraved in mezzotint; it is supposed to be the first attempt at mezzotint engraving in Philadelphia. We learn from his advertisement in the *Pennsylvania Packet* for August, 1780, that it was in poster size, fourteen by ten inches besides the margin. It represented the general in uniform leaning on a field-piece taken at Princeton with the British prisoners in the background.

About 1785, some bones of a mammoth were brought to him from which to make drawings. He became very much interested and soon was as enthusiastic a naturalist as he had been a painter. He began at once to collect material for a museum of natural history; this furnished a new field for his industry and ingenuity. He met with many difficulties, as he had to study for himself the ways and means of properly displaying his collection. This new idea met with hearty encouragement, many citizens and strangers contributed to enlarge

his collection, and in a few years his gallery at Third and Lombard streets, was too small to hold his museum, and it was removed to the Hall of the American Philosophical Society. Mr. Peale resided, with his family, in the same building, and here his son Franklin, the distinguished mechanic, was born. The building is still standing, on the West side of Fifth street, a few yards below Chestnut, occupying a portion of Independence square. It has had another story added since Mr. Peale's time.

The museum again requiring more room, the State House having been vacated by the legislature, Mr. Peale petitioned for the use of the building, and on March 17, 1802, an act was passed granting him the use of the upper story and the eastern end of the lower story (now known as Independence Hall), under reasonable restrictions. At this time the collection consisted of about two hundred stuffed animals, a thousand specimens of birds, a collection of minerals, four thousand specimens of insects, cabinets of serpents, fishes, etc. In one room were more than a hundred portraits of famous statesmen and soldiers painted by Mr. Peale and his son Rembrandt. The greatest curiosity was the Ulster county mastodon skeleton, dug from a marl pit by Mr. Peale in 1801 at a cost of \$5,000, and joined together with infinite labor. The museum remained here until shortly before his death, when it was moved to a new building known as the "Arcade," one block farther west, on Chestnut street. There is not extant at the present time an accurate or full description of this wonderful collection. All we know is from his advertisements, and the brief references visitors have made of it in their correspondence when describing it to their friends. It was, in its day, the wonder of Philadelphia, and the fame of it was known all over the world.

Peale wrote and published the following essays: "Building Wooden Bridges," 1797; "Lecture on Natural History," 1800; "Preservation of Health and Domestic Happiness," 1813; "Address to the Corporation of Philadelphia," 1816; "Economy of Fuel," 1817.

In connection with his museum Mr. Peale undertook to deliver a series of attractive popular lectures upon natural history, but at the outset he found much embarrassment from the loss of some of his front teeth. As a taxidermist, he had had considerable experience in supplying lost parts to his large family of animals. His experience of modeling in plaster acquired in London proved of practical usefulness in this work and he became quite skillful in repairing the deficiencies of his specimens. It was but a step to attempt to repair his own. In a curiously written autobiography¹ he tells in detail his ex-

¹ The following is an extract from the autobiography of Chas. Willson Peale,

perience, and of his efforts to obtain a material more lasting than the bone or ivory then generally used. By his own account he was remarkably successful, and it may be here observed that we are mainly dependent upon his own account for all we know concerning his connection with the dental profession as an amateur. About 1818 or 1819, the needed repairs to his dental apparatus having reached a stage requiring more skill than he possessed, he applied to Mr. Plantou (who shortly before had arrived from France, and had settled in Philadelphia, and was in practice as a dental surgeon) for a set of teeth. Mr. Plantou had brought with him a supply of porcelain teeth of French manufacture, and had also some knowledge of porcelain working. He undertook to make Mr. Peale a porcelain denture. Mr. Peale was now about seventy-eight years of age, but hale and vigorous in mind and body. Teeth that would not decay were a revelation to him. Whether Mr. Plantou's efforts were successful or not we do not know. It was something new, something he had long been looking for, and Mr. Peale at once began experiments with porcelain with a view to making a denture for himself. He seems to have been successful, so much so that he undertook to do the same for members of his family, and for friends, but in this he failed. He tells us that "after several years earnest and constant effort during which he lost no time in carrying out every idea which promised improvement, he reached the conclusion that, while a high price may be demanded for the work, and much money made at it, the trouble of fitting the teeth to give satisfaction, and on some occasions

written (in the third person) in his eightieth year, now in possession of his great-grandson, Mr. Horace Wells Sellers of Philadelphia:

"Having spent an abundance of time in making artificial teeth of different animals, first of ivory, then sea cow and sea horse, of which he made a considerable number of whole sets besides pieces to fill deficiencies of teeth where only a few were wanting, and finding that all his substances were very liable to decay and become offensive, he tried to find a harder substance in horses' and cows' teeth. He found, however, that the hardest teeth belong to hogs, but they were very seldom sufficiently large. The sea horse has an enamel that is exceedingly hard and very lasting, but it is only a thin coat, and the bony part decays quite as fast as ivory; therefore, the enamel soon loses the support of the bone.

All granivorous animals have their teeth of enamel and bone alternately and perpendicularly for the wise purpose of grinding their food, and he dissected the grinders of cow's teeth, especially old cows, the enamel of which is pretty hard, and the shape of the divided teeth being of convenient size corresponding to the size wanted for the grinders of human teeth. The cutting teeth of the same animal are tolerably well adapted to the size of the human tooth and of such he made many sets of tolerable appearance. The mode of executing them for himself and others was first to form a plate of pure silver to fit the gums exactly, and then solder a thin plate around each

the refitting before they can be used without complaint, requires patience and perseverance which is not always to be found in the person served, any more than in the operator." He worried so much over his ill-success that his children begged him to decline to undertake such work, as he had other things to do more pleasant and more profitable.

The teeth commercially made in France early in the last century, those which Mr. Plantou brought over with him, would be considered very crude at the present time. They were of what is known as a clay body, they lacked translucency and the lifelike appearance of those now in use. They were, moreover, poorly shaped. The dentist was supposed to properly shape the cutting edges with his grinstone to suit them for the right or left side, or if need be, by the same means, to form from the same stock, centrals, laterals, or cuspids; to make long teeth short, and wide teeth narrow. They resembled closely a "split bean." Their resemblance to a natural tooth, so far as shape was concerned, was not much considered in their manufacture. They were made to replace the destructible material from which dentists were accustomed to carve teeth, and the dentist was expected to give to these conveniently shaped pieces of porcelain the proper form by means of a grindstone, just as he, by means of files and gravers had previously shaped the blocks of bone or ivory they were intended to replace.¹ The front teeth were thin, rounded on the labial

piece that fitted the gums in a perpendicular position, and on the front of this plate the tooth was riveted. A simple rivet was generally sufficient, and springs were put in to keep the teeth in their place. He was much indebted to his friend, John Dorsey, for this, Mr. Dorsey's invention of springs being greatly superior to any invention before used, as they permitted the jaws to open to their full extent, and also every grinding motion, and although his springs are long, which is essential, yet they set close to the cheeks without causing any irritation, and a round-head button is fixed on each of the upper and under jaw in their proper place, to which the springs are clasped.

When his son Rembrandt went to France he sent by him Mr. Dorsey's invention of springs, desiring him to present the matter to the first dentist in Paris. General Armstrong directed him to Mr. Maury, and when he waited on that noted dentist he told Rembrandt that he thought the springs which he used were very perfect. Rembrandt told him that his father had no idea other than to serve him with what he conceived was a very valuable improvement in springs, and Mr. Maury said he would try them. He called at Rembrandt's lodging in about two weeks to inform him that on trial he found Mr. Dorsey's invention superior to any other.

The decay of all animal substances used for artificial teeth is a serious objection, because they require to be frequently renewed, and among other substance he once

¹Treatise on Dental Art, by F. Maury. Translated by I. B. Xavier, Baltimore, 1843, page 203.

surface and perfectly flat on the back. Lengthwise along the center of the back was formed before baking, a rounded groove, on each side of which were inserted small pieces of platinum plate, sometimes quite thin platinum wire. This groove was for the introduction of a half round gold wire against which the platinum points were bent, and solder flowed to unite the two metals, and also to unite the gold wire to the plate. (See Fig. 1.) If a neater finish was



Fig. 1

desired, a piece of gold was fitted so as to form a backing, and in soldering the solder was made to flow inside this and to unite it to the wire in the groove, and at the same time it was soldered to the plate. This was quite often done.

tried the use of Chama, and this shell made the most beautiful teeth. It was tolerably hard, but was liable to be acted on by acids, and in less than six months teeth of it became porous. After going through all these trials, he determined to try to make porcelain teeth. Mr. Plantou, a French gentleman, succeeded in making very handsome porcelain teeth, and obligingly offered to make him a set; yet these teeth did not answer his expectation, and believing that he would be able to make them suit himself better, he resolutely determined to prosecute his inquiries further, and after reading of the art of manufacturing porcelain and other potteries he called on Abram Miller, who carried on a large pottery in Philadelphia, and to his unspeakable satisfaction found Mr. Miller had made many experiments with porcelain, and was so very obliging as to aid him in this very important art. He showed him the essays which he had made and also gave him the materials he had used, and kindly offered to fire any teeth he might want. With this very encouraging information and aid he diligently set to work, first to make the teeth with holes, in order to rivet them to the perpendicular plates where he had before riveted the teeth made of animal substances. Although in that method they answered tolerably well, yet by the constant use in mastication these rivets were loosened, and required to be riveted occasionally. On this account he now thought that he must get platinum to be put into the composition before firing them, platina being the only material which will not be destroyed by the heat nec-

The back teeth were made with lengthwise round holes through the body of the tooth, precisely as the "English tube teeth" are made at the present time, and were secured to the plate by rivets. These were the porcelain teeth which first attracted the attention of dentists in this country, and which led to the experiments that finally resulted so successfully.

It has been claimed for Mr. Peale that he was a pioneer in this new art, and the first to bring it to a really practical stage. By his own account, it was brought to his notice first by "Mr. Plantou, a French gentleman, who had succeeded in making very handsome porcelain teeth, offering to make him a set." This statement settles the question of priority. He thought that he could do better; he always did whenever he saw anything new. That this was his first knowledge of the use of porcelain for artificial dentures is further evidenced by his saying in his autobiography that, "he then determined to prosecute his inquiries further," and to this end began to study the art of porcelain manufacturing by reading, and by interviews with those engaged in manufacturing like products, and it was, he tells us, "nearly two years before he satisfied himself with his labors in this line with the aid of his friend, Mr. Miller." There is nothing in this to indicate that he had, after two years' work, done any better than had Mr. Plantou long before. That which satisfies and delights an amateur not infrequently disgusts a skilled workman. Mr. Peale, his friends and neighbors, were charmed with the landscape, his first effort at painting, while in all probability Mr. Frazier would have justly considered its being made into a bag to contain whiting, the best use to which it could be put. The assertion that Charles Willson Peale was the first in America to essay to make good porcelain. To give the glazing the natural color of handsome teeth was a difficulty which he met with for a long time. It is stated that the Chinese glaze their porcelain with spar, which in England they could not accomplish in their attempts at making porcelain. The experiments he made were numerous, and it was nearly two years before he satisfied himself with his labors in this line with the aid of his friend, Mr. Miller.

At first the construction of a furnace gave much trouble, but Mr. Miller supplied him with one from his manufactory which answered perfectly well. Before he got this he made an attempt to fire teeth with a furnace he had constructed in the chimney, and not being able to gain a sufficient heat to vitrify the teeth with charcoal, he put in the furnace a small quantity of Lehigh Coal, and it increased the heat so much that the teeth appeared to be fully glazed. If he had then lowered the heat the success would have been perfect, but attending to other business at the time, the heat most probably increased and finally melted the black lead muffle, and the teeth became one mass. Although this was a serious loss, yet it was satisfactory to have discovered the powerful heat which Lehigh coal will give.

bringing this art to anything like perfection seems to have been inspired by a remark in connection with an after dinner address by his son, Rembrandt, at a banquet immediately following the first Annual Commencement of the Philadelphia College of Dental Surgery, February 28, 1853. (*Dental News Letter*, vol. vi, April, 1853, page 189.) Mr. Rembrandt Peale was present as an invited guest, and was called upon for some remarks, especially in reference to his father, as having made the first porcelain or composition teeth in this country. In reply, he stated that his father "had, after many experiments, succeeded in making a very good imitation of the natural teeth, some of which he wore in his own mouth, not only making the teeth but mounting them." That is all. He did not accept for his father, it is to be observed, the suggestion of priority.

In the "*Dental News Letter*," Vol. VIII, July, 1855, page 246, the editor, Dr. John R. McCurdy, refers to a short sketch of Mr. Peale's life published by his son, Rembrandt, in one of the city newspapers, which says: "And by inventing the first porcelain teeth, when they were experimenting with them in France, he prolonged the comforts of his old age and those of a few friends." Some time before this, Dr. McCurdy had addressed a series of questions to a number of the older dentists asking when and by whom the first mineral teeth were made in the United States; and when they began experiments with porcelain, and when, and for whom, they inserted the first set of porcelain teeth of their own make? The replies to these are published in the "*Dental News Letter*," Vol. VII, July, 1854, page 242. From these we gather that Peale's experiments were made when he was about eighty years of age, say, about 1821. Dr. Ely Parry, a student of Mr. Plantou, places the date of Plantou's making them 1819, and adds that Peale and Plantou were working on the problem at the same time, unknown to each other until they were apprized of it by the potter whom each had selected to burn the teeth. Dr. Harrington says that while he was a student with Dr. H. H. Hayden, at Baltimore, about 1824, a gentleman whom he believed to be Mr. Plantou, called upon Dr. Hayden to exhibit some mineral teeth which he had made. Dr. Hayden was not satisfied with their appearance, and declined to take or use them. "A year or two later," he says, "Dr. Hudson, of Philadelphia, imported some from France, for his own use, which while coarsely made were more natural in appearance. As a convenience he sold them to other dentists at a dollar a tooth." Dr. J. F. McIlbenny, who is conceded to be the first in Philadelphia to produce the translucent body which added so much to the natural appearance of porcelain artificial teeth, states that he commenced his experiments October, 1826,

and inserted teeth of his own manufacture the following spring. During the course of the year 1828 he exhibited his teeth to Drs. Hudson and Harrington who expressed themselves perfectly satisfied with them, and recommended their patients to his office. Porcelain teeth made by this skilled workman in the early thirties can hardly be excelled to-day. Several years before he commenced his experiments Peale had retired from the field disgusted and discouraged by his ill-success, and so far as the record shows, left no impress of what he had done. His remarks in reference to dental matters, in his autobiography, give unmistakable evidence that he had no knowledge of the state of the art. He was groping in the dark, his method of mounting teeth, while suitable for the stuffed animals in his museum, was clumsy, and had long been superseded by better methods. His discovery of the usefulness of platinum in connection with porcelain teeth had been anticipated more than a score of years. A careful and prolonged study of all the available evidence revealed nothing more than the bare fact that he engaged in a series of experiments with porcelain in the effort to improve porcelain dentures, badly handicapped by his ignorance of dental art, and the progress it had made. His experiments may have been helpful to his compeers, but otherwise accomplished nothing. The claims made in his behalf, in this connection, are absolutely without foundation; and should be dropped promptly, and forever, from dental history.

In 1791, Peale took an active part in an effort to found an Academy of Fine Arts in Philadelphia, aided by artists sojourning in that city. After considerable agitation this had advanced so far that by 1794, assisted by the great Italian sculptor, Ceracchi (who afterwards conspired against the life of Bonaparte), some casts were collected and a class formed. From time to time, loan exhibitions of pictures were held at the State House, in Independence Hall, but it was not until about 1809 that a permanent organization was formed under the name of "The Pennsylvania Academy of the Fine Arts." Mr. Peale was a prime mover in this and lived to see and contribute to seventeen annual exhibitions of the Academy.

Mr. Peale reached his eighty-fifth year with but little interruption to his health. Imprudently carrying his trunk to meet a stage coach which he feared would leave him behind, induced a violent disorder of the heart, from which he had hardly recovered when he indiscreetly mounted a high ladder in the new Arcade building, the upper rooms of which were being prepared to hold his museum. This brought on a relapse and a speedy death, which occurred at his residence, Walnut street above Sixth, Philadelphia, on the evening of February 22, 1827, in the eighty-sixth year of his age. He was buried on Sun-

day morning, February 25, in St. Peter's Protestant Episcopal Church yard, Southwest corner of Third and Pine streets, Philadelphia.

Mr. Peale was a man of uncommon gifts, and would have attained greater fame as a painter had he concentrated in the cultivation of one art the wonderful energies wasted in so many different pursuits. Considering his opportunities and his surroundings, it must be conceded that he achieved more than could have been expected of any man.

His large collection of historic portraits, and his well arranged museum, were appreciated all over the world, and earned for Charles Willson Peale the reputation of being the best known American citizen.

Perhaps no higher or more eloquent eulogy can be passed upon this remarkable man than by his son, Rembrandt, when he says: "However praiseworthy may have been his industry, remarkable or amusing his ingenuity, and productive his perseverance, in the success of his museum he possessed a higher claim to the remembrance and esteem of his countrymen. He was, withal, a mild, benevolent, good man."

Facts contained in this sketch were obtained from:

Biographical Sketch of Charles Willson Peale in the Cabinet of Natural History and American Rural Sports, Philadelphia, 1830, Vol. I, p. 1.

Porcelain Teeth: Their Selection and Adaptation. S. S. White Dental Manf. Co., Philadelphia, 1902, page 24.

Magazine of American History.

Lossing's Field Book of the Revolution.

History of Philadelphia. Scharf & Westcott, 1884, Vol. II, p. 1035.

Dunlap's History of Art and Design.

Scribner's Cyclopedia of Painters and Painting.

Lester's Lives of Artists; Philadelphia.

Naturalists' Magazine.

Art and Artists of Our Times, by Clarence Cook, pp. 215-218.

Littell's Living Age, Vol. XLIV., p. 649; 1855.

The author acknowledges his indebtedness to Dr. William H. Trueman, Philadelphia, for aid in gathering data.

JOHN RANDALL, A. B., M. D.

A PIONEER OF BOSTON.

John Randall was born December 27, 1774, in Stow, Mass., where he spent his early boyhood. He was the oldest son of Silas and Elizabeth (Witt) Randall. He entered Harvard University and graduated, receiving the degree of Bachelor of Arts in 1802, with a class celebrated for the eminent talent of many of its members.

He studied medicine with Dr. John Jeffries, of Boston, and began his medical career in that city in 1805, being from the first successful. Desiring to further advance in his science he attended a course of lectures in the medical department of Harvard University, graduating with the degree of doctor of medicine, 1811.

The circumstances under which he was led to turn his attention to dentistry are interesting as showing the character of the general dental practice of the time. Finding, while at college, his teeth decaying, Dr. Randall applied to the most prominent dentist of whom he knew and was frankly told by that practitioner that "his business was to put in new teeth," and that he declined operating to preserve the natural ones. This, in the light of his general education, appeared to Randall to be a very limited view of dental surgery, and he at once procured such dental works as he could and studied them under the impression that disease might and should be remedied without removal of the diseased member. His first efforts in dentistry were while he was in college, and were performed on himself. His fellow students were also benefitted by his operations.

Dr. Randall practiced medicine and surgery as a calling but gave special attention to the teeth and mouth. He never advertised either branch of his profession, although such a method of obtaining publicity was resorted to by the most eminent of his contemporaries without any thought of it being unprofessional. "He was decidedly conservative in his theory and practice of dental surgery. He was very successful in treating and extracting teeth. He used the key with great skill and the forceps long before they were known as an article of merchandise. His success in pivoting teeth was very great."



John Randall, A. B., M. D.

Portrait from painting in Randall Library, Stow, Mass., loaned by Dr. Chas. McManus,
Hartford, Conn.

He was one of the first members of the Massachusetts Medical Society. Dr. Levi Spear Parmly and Dr. Nathan C. Keep, the first dean of the dental department of Harvard University, were students of Dr. Randall.

His home in Boston was on Winter Street, on the site of what is now Shepard, Norwell Company's store. Dr. Randall married Miss Elizabeth Wells, who died in Boston, January 29, 1868. She was the granddaughter of the great patriot of the Revolution, Samuel Adams. To them were born five children, four daughters and one son, John Witt Randall, born in Boston, November 6, 1813, who, after attending Boston Latin School, graduated at Harvard in 1834, and at the Harvard Medical School in 1839. He then devoted himself to scientific work, especially entomology, soon receiving the appointment of professor of zoölogy in the department of invertebrate animals in the South Sea (Wilkes) exploring expedition, but through delay he gave this up. Later he retired and devoted considerable time to collecting engravings, of which he had the rarest and most original collection in America. He began six volumes of poetic works, only one of which he completed. It was published in 1856. He wrote a number of scientific papers, among them one on crustacea for the transactions of the Academy of Natural Sciences of Philadelphia; two on insects for the transactions of the Boston Society of Natural History; one manuscript volume on the animals and plants of Maine, furnished to Dr. Chas. T. Jackson to accompany his geological survey of that State and by him lost: "Critical Notes on Etchers and Engravers," one volume; and a classification of the same in one volume; also unpublished essays and reviews in manuscripts.

Dr. J. W. Randall died Monday, the twenty-fifth of January, 1892, age seventy-eight, at Roxbury. He never married. John W. and his sister, Belinda L. Randall, bequeathed funds to certain trustees to be distributed by them in aid of charitable objects. Of this fund \$70,000 was given Harvard to be used in the construction of a dining hall, known as Randall Hall. They also founded Randall Library at Stow, Mass.

Dr. John Randall died at Boston, December 20, 1843, aged sixty-nine years, having been a useful and honorable member of society, highly respected by both the dental and medical professions. He was one of the most eminent practicing physicians and dentists of his time in Boston: he was successful and popular and acquired by his devotion to his profession a handsome competency. Authentic data is so hard to obtain regarding Randall that an exhaustive account of his career is impossible. He should have a place among

the early dentists of Boston such as Josiah Flagg and the Greenwoods, who were conservators of the dental organs.

He saw the need for dental knowledge and service and realizing the crudeness of the profession at that time and the possibilities offered, he was one of the first in Boston to take up the practice of treating and preserving the natural teeth and was an early advocate of preventive dentistry.

The facts contained in this sketch were obtained from:

Harris' Dental Dictionary, page 638, 1849.

Medical Communications, Massachusetts Medical Society, Vol. VII., page 166, 1848.

Dr. John Witt Randall's "Poems of Nature and Life," edited by Mr. Francis E. Abbott.

LEONARD KOECKER, M. D., D. D. S.

PIONEER DENTIST AND AUTHOR.

Leonard Koecker, a son of a Lutheran clergyman, was born 1785, at Bremen, Hanover, Germany. He received a common school education at the public school, and at the age of fifteen, he was placed by his father, in a mercantile house in his native city as an apprentice. Here he formed the acquaintance of a traveling Hebrew, who followed the calling of dentist and peddler, and who became interested in young Koecker and allowed him to familiarize himself with his instruments and watch his operations. He also furnished Koecker with a small outfit of operating instruments.

In 1807, at the age of twenty-two years, Koecker came to America as a commercial agent, locating at Baltimore. This agency soon failed and he was left without employment and means of support. Being an accomplished musician, besides possessing rare tact and suavity of manner, he readily obtained access to the best society and made numerous friends. Making known his straightened circumstances to a friend, a Mr. Delaplaine, and informing him of the knowledge he had received from his Hebrew friend in Germany, he was advised by Mr. Delaplaine to begin the practice of dentistry at once and add to his knowledge as he could. Acting on this advice he opened an office and began practice in Baltimore, 1807, and practiced there for a few years¹ soon to remove to Philadelphia, locating in that city about 1812. His first office was at 33 North Eighth Street and his last, 1822, on Walnut Street, between Seventh and Eighth, where the Philadelphia Saving Fund Building now stands.

His first patient was a gentleman who desired a tooth extracted. In describing this operation Dr. Eleazar Parmly² says: "He grasped the tooth with an instrument, shut his eyes and turning his head from the patient, made a strong effort, which dislodged the tooth from the socket, but under such excite-

¹ American Journal Dental Science, second series, October, 1850, p. 108.

² American Journal Dental Science, second series, p. 471. Other reference in Harris Dental Dictionary, p 638, and the American Journal Dental Science, second series, July, 1851, p. 471. James Robinson's Directories, Philadelphia.



Leonard Koecker, M. D., D. D. S.

ment that he knew not whether the tooth was out or the jaw broken." The operation pleased the patient, who complimented Koecker on his skill (?), saying "he never before had a tooth extracted so easily." From this patient's influence his success began in Baltimore, his practice yielding him \$8,000 a year. He was possessed of much mechanical skill, making his own instruments as he needed them and supplying his professional confrères with patterns. He also annealed and beat his own gold foil.

From too close application to his business his health failed him after seven years' successful practice in Philadelphia. An acute attack of dyspepsia caused him to abandon his practice in 1822 and seek rest and health in a trip to Europe. After his arrival in London he decided to locate there, where he endured many difficulties before he finally succeeded in establishing a paying business that yielded him an income equal to his Philadelphia practice.

Being an entire stranger in London, he carried with him letters, of both social and professional recommendation, from President James Monroe, John Quincy Adams and John C. Calhoun addressed to U. S. Minister Richard Rush at London; from Edward Ingersoll addressed to Washington Irving; from Thomas Sully, the portrait artist, and his intimate friend, addressed to Thomas Lawrence, President of the Royal Academy, and a certificate as to his skill and abilities from the celebrated Dr. Philip S. Physick. Through this he formed the acquaintance of Sir Astley Cooper, Mr. Laurence and Dr. David D. Davis, all distinguished in English medical and surgical circles, who extended to him a friendly and favorable reception and who did much toward his future success. He operated on a diseased palate successfully and supplied a substitute for a patient referred to him by Cooper and Laurence. The skill he demonstrated in handling this and other difficult cases materially advanced him in the confidence and esteem of these gentlemen.

His first literary production was a memoir on "The Devastation (or conjoined suppuration) of the Gums and Alveolar Processes," published in *Chapman's Journal* Philadelphia, about 1819. In London, 1826, he published his first book, "The Principles of Dental Surgery, exhibiting a new method of treating the diseases of the teeth and gums." This work was later republished by the American Society of Dental Surgeons, Baltimore, 1842. This was a complete work on dental science, pathology, and therapeutics, far in advance of anything heretofore published in the English language, containing many practical ideas. Koecker was the first English writer to describe correctly the principle upon which artificial teeth should be applied and constructed in his essay on "Artificial Teeth, Obturators, and Palates," published 1832. He

also published, in 1834, "An Essay on the Diseases of the Jaws, etc." In 1827 he published a forty-page pamphlet entitled: "Reply to the additional strictures contained in the first number of the *Quarterly Medical Review* on the Principles of Dental Surgery, etc."

He recommended as a preventive of irregularity in secondary dentition "extracting some of the permanent set at an early period in order to give sufficient room for the rest, especially the first molars." He also remonstrated against the use of the mallet in filling teeth, and speaks of some operators employing "hammer and punch to drive the metal into the cavity." He also deplores the practice of leaving stumps of roots in the mouth, saying: "The only method of cure of all the idiopathic and symptomatic maladies, whether general or local, occasioned by dead roots or teeth, is their immediate extraction, they being always the principal and proximate exciting cause of the disease." He also advocated the use of the Physick forceps for the removal of the *dentes sapientiae*.

Koecker used plates of lead for capping pulps, contending this metal had a soothing and anti-inflammatory effect on the pulp tissue. If the pulp was wounded he applied actual cautery, placing the cap over the eschar thus formed, and filling the cavity with gold. He practised the devitalization of the pulp with actual cautery applied with a red hot wire. He opposed the use of wood pivots in inserting crowns, advocating only gold or platina.

He received the honorary degree of Doctor of Medicine from the Philadelphia and London Medical Colleges and the honorary degree of Doctor of Dental Surgery, February 18, 1842, from the Baltimore College of Dental Surgery. He was also a member of the Medical Society, the Linnaean Society, and the Academy of Natural Sciences of Philadelphia.

Koecker was studiously inclined and had an ambition to be scholarly. During his London residence he thoroughly mastered the English, French and Latin languages.

He retired after twenty-eight years' practice in London, selling the good will of his business for a large amount. It is stated he was possessed of expensive and extravagant habits and speculated in railroad stocks and lost ten hundred pounds at one time.

He married, 1817, Miss Maria Donath, daughter of Joseph Donath, a merchant of Philadelphia. To them two sons were born, Joseph Donath Koecker, an architect, and Leonard R. Koecker, M. D., who followed his father's profession until about ten years before his death, when he retired. This son was a lover of literature and art. He accumulated a valuable library of rare prints

and fine editions, which was the nucleus of the famous Claghorn collection. He was also a worker in wood, paper and metal and exhibited his work, which contained rare specimens of his illustrating and book binding, at the Centennial exhibition at Philadelphia, 1876. He was also interested in clocks and had an extensive collection, many of his own construction.

As a child, Leonard Koecker, Sr., was noted for his gentleness and politeness of manner. Being of refined taste, a lover of music and an individual of scholarly attainments, he was readily received by the best people, many of whom he numbered as his patients.

With comparatively no dental knowledge at the beginning of his professional career, by studious attention to details, tact and energy he built an excellent reputation as dentist and teacher, enjoying in the fullest respect the confidence of both the public and the profession.

Three months before his death he was seriously burned by his night gown catching fire; from which accident he never recovered. This injury, combined with dropsy and asthma, caused his death at the age of sixty-five. He was buried August 8, 1850, in Norwood Cemetery, about six miles from London.

The portrait which illustrates this sketch is from a miniature by Miss Newell, now in possession of the remaining members of his family at Philadelphia.

HORACE H. HAYDEN, M. D., D. D. S.

ARCHITECT—GEOLOGIST—DENTIST—ORGANIZER—PROMOTER AND "FATHER OF
THE AMERICAN SOCIETY OF DENTAL SURGEONS."

Horace H. Hayden was born October 13, 1769, at Windsor, Conn., of honorable and Christian parentage. He was not "born of obscure or poor parents," as stated by previous biographers. His ancestor, William Hayden, of Connecticut, 1630, won special mention for gallantry in the official report of the captain, John Mason, whose life he saved in the Pequot war of 1637. He settled at Windsor, Conn., 1642, where he bought land, and also received land from the colony of Connecticut for his military services in the Pequot war. That land the family still own, having held it now for 260 years. William Hayden's eldest son Daniel was a lieutenant in the Colonial service and a member of the General Court. His commissions as lieutenant are extant. Lieutenant Daniel had also an elder son Daniel, who was likewise a member of the General Court of Connecticut. His eldest son, the third Daniel, was also a lieutenant in the French and Indian war, and for his day a rich man. The house he built and lived in still stands at Hayden Station, Connecticut, having been erected in 1740. Lieutenant Daniel, third, had an eldest son, Thomas Hayden, who was a builder and seven years in the Revolutionary war, sergeant at the Lexington Alarm, 1775; sergeant major, second lieutenant, first lieutenant and adjutant. His service extended from 1775 to 1778 and 1780 to 1783. When the Revolutionary war ended Lieutenant Thomas Hayden had lost much, but still held his land and his business and it was from his father that Dr. Hayden learned his business of architect and builder. His early training was from his mother, who had an honored ancestry. His mother was Abigail Parsons, descended from one of the brainiest families in New England. Born 1769, he was a boy during the Revolution, and all the men being in the army, he and his mother harvested the crops and attended to the farm. Every ancestor he had in this country was a member of the Christian Church. Rev. John Warham, the first clergyman in New England and the ancestor of the Edwards, Burrs, Parsons and others, was also his ancestor, and as his mother and father were cousins the hereditary gifts of both lines united in him to some extent.



Moses A. Nagden M.D., D.D.S.

During his boyhood he exhibited a remarkable liking for natural history, often surprising his friends by his ingenuity and success in discovering objects of interest while rambling in the woods. At the age of ten he began the study of the ancient language, in which he became quite proficient. At the age of fourteen he worked his passage as a cabin boy on a brig to the West Indies, making two trips. After this he returned to school and to his books and studies of nature, until at the age of 16, he learned the trade of carpenter and architect from his father.

Young Hayden was studiously inclined and whatever he undertook he worked at with a will. With a characteristic ardor he diligently applied his mind to his new employment, reading such books on architecture, both modern and ancient, as he could procure. As a result of this application he left many writings and drawings as evidence of the knowledge and skill he possessed in this art.

At the age of twenty-one he again sailed for the West Indies, seeking employment in his business, and located at Point Petre, Guadaloupe, but after a brief stay, an attack of the periodic fever compelled his return to his native land, where he remained until the following year, when he returned to the West Indies, but was again forced to return to Connecticut by the pestilence.

For several years he continued to follow his vocation as architect. At the age of 24 he left his native home and went to New York, remaining there during the spring and summer of 1792. Meeting with but little success, he returned to Connecticut and taught school near Hartford during the winter. Returning to New York, he called on Mr. John Greenwood, dentist, for professional service. He greatly admired Greenwood's skill and, while under treatment, he concluded to adopt that calling and to devote his time and energy to dental surgery. He immediately procured from Greenwood the few books and essays on the science at that time accessible—the best being the work of John Hunter. Leaving New York, he traveled to Baltimore, arriving there in 1800¹ without friends or fortune and with but an imperfect acquaintance with his new calling, but possessing plenty of native ability and imbued with energy and ambition to excel in his art. He rented a room in a frame house on the corner of Fayette Street and Charles Street, and announced to the public that his services were at their command. His natural earnestness

¹ Horace H. Hayden was licensed to practice dentistry in Maryland in 1810 by an examining board created under an act of Assembly for the State of Maryland in 1789. The board was not, strictly speaking, a dental board, but created under an act regulating the practice of medicine and surgery.

and aptitude quickly attracted attention and he was soon actively engaged. He used to teach a class in dentistry and thus began the first steps towards the college which Harris and he involved from their work. He persuaded his brothers, Anson B. Hayden of Savannah, Ga., and Chester Hayden of Windsor, Conn., to study dentistry, and both became almost as eminent as operators as he in the profession, though neither wrote or touched other lines of study.

To better perfect himself in his specialty he studied anatomy and medicine, acquiring much knowledge in these sciences and thereby gaining the respect and good will of the medical profession, whose confidence in him was shown in later years, when, without solicitation, the honorary degree of Doctor of Medicine was conferred on him (1837), by the Jefferson College of Medicine of Philadelphia and the University of Maryland (1840).

When the British attacked North Point, Maryland, 1814, Hayden enlisted as sergeant in Captain Warner's company of militia and served through the action, when medical men being in demand, General Samuel Smith, knowing his skill in surgery, ordered him to the hospital as assistant surgeon, where he served caring for the wounded until no longer needed. He came of a martial family, every Hayden ancestor having been a soldier.

Hayden rose rapidly in public confidence. He became associated with the most celebrated physicians and medical teachers in Baltimore and his opinions were listened to with respect and his suggestions frequently adopted. He was the first to give the profession caste in Baltimore. In 1825 he accepted an invitation to deliver a course of lectures in dental surgery to the medical class of the University of Maryland, an honor never before conferred upon any practitioner of dentistry in the United States. He contributed many essays on dentistry and medicine to the medical journals.

He delved into physiological and pathological research, making new discoveries, especially investigating the use and functions of the thyroid, salivary, lachrymal and other glands of the human system thus showing his acuteness of mind and experimental abilities. Having attained personal success and secured a professional standing he was anxious to improve the standing of his profession in general. He first advocated a union of dental practitioners into an association for mutual improvement in 1817, but this was not effected until August 18, 1840, when in New York City assembled L. S. Parmly, Elisha Baker, Eleazar Parmly, Patrick Houston, Enoch Noyes, Vernon Cuyler, John Lovejoy, Chapin A. Harris, Jahial Parmly, Joseph N. Foster, A. Woodruff Brown, C. O. Baker, J. Smith Dodge, and Solyman Brown, who actively aided him in founding the American Society of Dental Surgeons, and he was chosen

its first president, continuing in that office four years, until the date of his death.

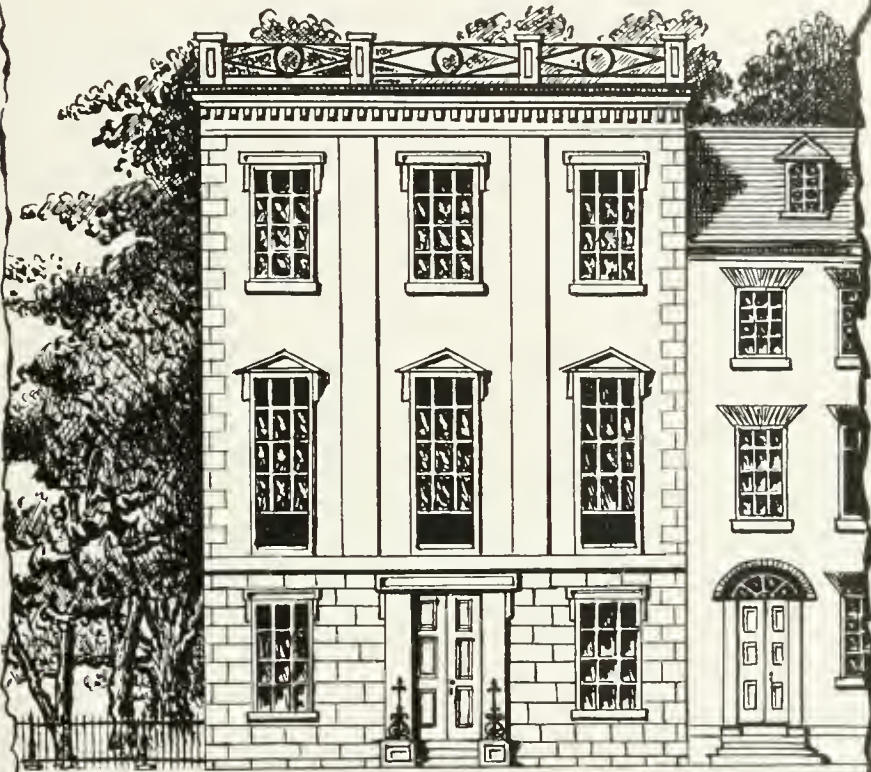
At the birth of this society he remarked that the formation of a national society of dentists had long been a favorite project with him and that he had not been alone in this desire. Many years ago he had consulted the elder Hudson of Philadelphia, who was favorably inclined to such an association. On a visit to Boston and the Eastern cities he consulted his professional brethren and found them ready to co-operate in any practicable scheme to elevate the profession. He said that forty-three years ago the name of dentist was a reproach and a by-word, and that he had resolved to improve and exalt the profession so that it was not a disgrace to be called a dentist. From that time he had seen the science assuming more importance in the public eye—men of learning, worth and genius being added to the ranks of its professors from year to year. "At the present period," continued the speaker, "Renewed profession on still higher ground than it has yet attained; and shall we of these United States of America remain inactive in this grand endeavor. If like the Jews, we are scattered and despised, may we not, like that persecuted people, at least hope for a day of restoration to our promised land! There are indeed many obstacles still to overcome!

"A new race of Canaanites must be expelled from our borders. Many errors must be exploded and much ignorance must be dispelled before the light of truth will beam clearly upon our path: but with diligence, zeal and perseverance we are certain of ultimate success.

"Let us, therefore, go forward in the good cause, unintimidated by the skepticism of the faithless, the fears of the timid, or the apathy of the selfish. If there are some who prefer to plod onward in the path of private enterprise, let us unite our efforts in one great social endeavor to elevate our profession from the degraded condition to which it has sunk, and in which it must ever remain until the highminded and well educated amongst its practitioners shall unitedly arise and shake themselves from the dust."

At the next meeting of the society in 1841 he was instrumental in organizing, with the aid of his confreres, *The American Journal of Dental Science*, the first dental journal ever published.

With the aid of his friends and collaborators, Drs. Chapin A. Harris, Thomas E. Bond, Jr., and H. Willis Baxley he formulated and founded, 1839, the first institution dedicated to special dental education in the world, the Baltimore College of Dental Surgery, of which he was, at the age of 70 years, the first president and first professor of Principles of Dental Science and later Professor



The Baltimore
College of Dental Surgery
1839.

of Dental Physiology and Pathology, serving in that capacity until his death. The establishment of this college met with bitter opposition from many sources, and it was predicted by many that its success would be short lived, but the zeal and conscientious efforts of Hayden and Harris made it the success they had hoped for. Long before 1841 Hayden said "mechanical and operative dentistry" was "not, in strictness, the indispensable requisite qualification of a dental surgeon." He believed that the dentist to be qualified in his profession should be thoroughly educated in the science of medicine. As a token of professional and personal merit he was created an honorary member of the Virginia Society of Surgeon Dentists, October 11th, 1842. He was one of the founders and Vice-President of the Maryland Academy of Science.

February 11th, 1842 Hayden was granted a patent which has been entirely overlooked by his early biographers, but which he atoned for in his later years, as at the time of its issuance it was not considered unprofessional. His claim was "preventing caries of the human teeth and the exclusive privilege of using and rending the empyrheumatic oil (tar or balsam) and acid obtained by distillation of wood, which oil or acid, when properly modified, proportioned and applied, is used for the purpose of counteracting decay in human teeth, and the diseases consequent thereto, and to the human mouth." For this remedy Hayden claimed "*antiseptic properties, which counteracts caries, allays pain and irritability of the vessels of the teeth and mouth, lessens morbid sensibilities and arouses and restores a healthy action.*"

Besides being a pioneer dentist, Dr. Hayden was a pioneer geologist. All through his career he was constantly examining mineral peculiarities, the result of that love for nature which was developed in his early youth when living on the banks of the Connecticut river. He was far ahead of his age in his scientific discoveries. There were then very few geologists in the United States. He collected a valuable cabinet of American minerals which in 1850 became the basis of the complete collection of Roanoke College, Virginia. So limited was the literature of geological science in English that he was compelled to master the French language to be able to read the best books on Geology, from which he made many translations.

In 1821 he published an interesting work of 400 pages entitled "Geological Essays," the first general work on geology printed in the United States, and dedicated to his personal friend, Judge Thomas Cooper of Pennsylvania. He discovered a new mineral which was named *Haydenite* in his honor.

He was a botanist of no mean attainments and wrote on silk worm culture, vocal culture, etc. He was also a great sportsman, and with gun and rod

he excelled. He married February 23d, 1805, at Baltimore, Md., Marie Antoinette Robinson, daughter of Lieutenant Daniel Robinson of Baltimore, a United States revenue officer, who had served in the Pennsylvania navy during the Revolution as lieutenant and quartermaster, and had succeeded John Dickinson as a member of the finance committee of Delaware in 1777, a man of fine character and family. He married in the south and there all his children were born. They were: Eliza Lucretia, Handel Mozart, M. D., D. D. S.; Edwin Parsons, lawyer; Horace William, merchant, and two others who died in infancy.

Dr. H. H. Hayden died Friday, January 25, 1844, at Baltimore, Md., aged 75 years, and was buried in Greenwood cemetery, Baltimore, where his remains still lie in the family vault. Forty-four years of his life were spent in the active practice of his profession. Hayden had a prophet-like mind that foresaw the result of great enterprises. His keen intellect and foresight has made him a hero of our profession. To his last breath he spoke with love and praise of his students and the profession he did so much to advance and improve. He was a diligent student, a deep and independent thinker, eminent as a scientist in Europe and America, and an excellent teacher for fifty years, far in advance of his day. He was a God-fearing and truly scientific man, loving knowledge for its own sake and was an honor to the profession that honors him. Time may erase his fame as practitioner, author and scientist, but his name will ever live as *father of American Dental Science*.

The principal facts in this biography were obtained from Rev. Horace Edwin Hayden, Wilkes Barre, Pa., grandson of the subject of this sketch.

CHAPIN AARON HARRIS, A. M., M. D., D. D. S.

TALENTED AUTHOR, TEACHER AND PRACTITIONER, CO-ORGANIZER OF THE AMERICAN SOCIETY OF DENTAL SURGEONS, AND FIRST DEAN OF THE BALTIMORE COLLEGE OF DENTAL SURGERY, AND FOR TWENTY YEARS EDITOR OF "THE AMERICAN JOURNAL OF DENTAL SCIENCE," AND PRESIDENT OF THE AMERICAN DENTAL CONVENTION.

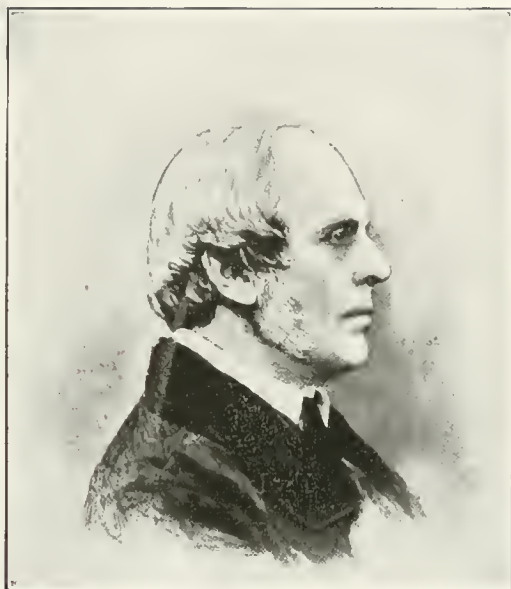
When we consider the achievements and review the career of such a man as Chapin A. Harris, who was undoubtedly the most energetic of the galaxy of dental pioneers, we are reminded of Longfellow's words, "Great men stand like solitary towers in the City of God."

Chapin A. Harris was a tower in the field of scientific dentistry, who for fertility of ideas and resourcefulness and for generosity in giving time, talent and energy to his profession no one has excelled. He assisted Hayden in uniting Dental Surgery to Science, and raised it to the worth and respectability of a profession.

As author, organizer, journalist and successful projector of Dental College education, his name will ever be revered and respected. He was one of the most versatile and talented of the real makers of the dental profession, one, who from his good works, must have believed that "the empiric makes of all things a secret, but the artist gives publicity to his useful inventions."

Chapin A. Harris was born at Pompey, Onondago Co., New York, May 6, 1806. His ancestors were of English origin, of rank and position, being a branch of the Harris family in England now represented by the Earl of Malmesbury. Captain Joshua Harris, who fought bravely under Stark, at Bunker Hill, was his grand-uncle.

James Harris, who was killed in a skirmish during the Revolutionary War, was his grandfather and a native of England, as was his father, John Harris, born Dec. 30th, 1773, who married Nov. 25, 1791, Elizabeth Brundage. They came to America and to them were born two daughters—Amanda and Eliza—and three sons—James, who became a clergyman; John, a physician, and Chapin Aaron, the subject of this sketch.



Chapin A. Harris M.D. D.D. S.

About the age of seventeen young Harris moved to Madison, Ohio, at which place his brothers, James and John, had previously located, and where John was practicing medicine, and he entered his office as a student about 1824.

After pursuing the course of study prescribed by the laws of the State he applied to the Board of Medical Censors, who examined and licensed him to practice Medicine and Surgery, and he commenced the practice of this profession in Greenfield, Highland Co., Ohio, where he continued for some years, when his attention was called to the possibilities of Dentistry, by his brother John, who was well skilled in medical theory and practice before he engaged in Dentistry, in 1827. Chapin A. Harris and his friend, James Taylor, later organizer of the Ohio College of Dental Surgery, were both students of Medicine and Dentistry under the tutelage of John Harris.

Chapin began the practice of dental surgery in Greenfield in 1828 by extracting, cleaning teeth and inserting a few fillings. Not satisfied with the meager knowledge he possessed, he secured the books of Delabarre, Fox Hunter and other recognized authorities, and soon acquired a thorough knowledge of the profession in which he afterwards became so eminent. He remained in Greenfield about a year and then moved to Bloomfield, Ohio, where he combined the practice of Dentistry with Medicine and Surgery for two or three years. Leaving that place, he traveled through the South and Southwest, visiting the larger cities as an itinerant. Wherever he went, by his good work, the public estimation of the profession was elevated, and his own reputation established.

Tiring of travel, he located at Fredericksburg, Virginia, where he devoted his time exclusively to the practice of Dental Surgery, his success being such that he entirely abandoned the practice of general medicine and surgery, but continued the study of medicine. In 1835 he located permanently at Baltimore, which offered many advantages for practice, and announced his readiness to practice his profession in all its branches. From that time until 1837 he employed a large portion of his leisure time in contributing to the pages of medical and periodical literature. In 1838, feeling his contributions were not producing the best results, he resolved that his writings should take a more compact and permanent character. This resolve induced him to prepare and publish his first book, entitled "The Dental Art—a Practical Treatise on Dental Surgery," which was issued in Baltimore in 1839 and dedicated to his medical friend, Dr. Thomas E. Bond, Jr. This book consisted of 385 pages, illustrated by three lithographic plates. A second edition was issued by the firm of Lindsay & Blackiston, Philadelphia, in 1845, under the title of "Principles and

Practice of Dental Surgery." This was a volume of 600 pages, containing 69 wood engravings. Other editions were issued in 1847, 50, 52, 55, 58, 63, 66, 71, 85, 89, 96. During all these years many thousands of copies of the books have been sold, it in all probability being the most popular dental work published before or since that period. All the later editions have been edited by Dr. Ferdinand J. S. Gorgas, who has revised the book for each edition, except the tenth edition, which was edited by Dr. Philip H. Austin. His next literary effort was Harris' *Dictionary of Dental Science*, a dictionary of Dental Science, Biography, Bibliography and Medical Terminology, published by Lindsay & Blakiston in 1849; other editions followed in 1854-77-91-98. The later editions of this work have also been edited by Dr. Gorgas, and it has, considering its special character, had a large sale throughout the English-speaking world.

Harris remodeled, in 1846, with an introduction and numerous additions, Joseph Fox's "Disease of the Human Teeth, their natural history and functions, with mode of applying artificial teeth, etc." He also translated from the French the works of Delabarre, Lefoulon, Duval, Desirabode and Jourdain, all republished in *The American Journal of Dental Science*. Dr. Harris was an untiring worker, and during the winter of 1838 he spent a month professionally at Littleton, N. C., where one of his distant relatives writes me, "he did over four thousand dollars' worth of dental work in an office room 12 by 16 feet. He had no dental chair or head rest, but sat in a chair and put his foot on a stool, the patients sitting on the floor, resting their head on his knee. He would work hard all day operating and write on the manuscript of his 'Principles and Practice of Dentistry' until one and two o'clock in the morning." He was a laborious student and followed this practice of writing far into the morning after days of ceaseless labor and fatigue, to the end of his life. Feeling the need of some receptacle for treasuring the experiences of the profession and its current literature, he visited New York and urged upon a few professional friends the propriety of establishing a periodical devoted especially to the interests of the dental profession.

His plan was readily embraced by a few progressive men, who promptly called a meeting composed of some of the foremost of the profession in New York, some of whom subscribed one hundred dollars and others lesser amounts towards the expense of one year's publication of a monthly journal to be known as "*The American Journal of Dental Science*." The first issue appeared June, 1839, published at Baltimore, under the direction of a publishing committee consisting of E. Parmly, E. Baker and Solyman Brown, with

Chapin A. Harris and Eleazar Parmly as joint editors. This journal consisted of forty-eight pages, twenty-four of which were to be devoted to the publication of standard works on dental theory and practice. Among them were *The Treatises of John Hunter*, Leonard Koecker, Baume, Garrot, J. Nasmyth, T. Berdmore, Jobson, J. Waite, Blandin, Blake, S. Brown and T. E. Bond. By the fourth number the circulation reached 511 with 174 subscribers. At the close of the first year the Journal came into possession of the American Society of Dental Surgeons, at this society's organization, 1840. who issued it quarterly instead of monthly, and increased the price of subscription from \$3.00 to \$5.00 and changed the title to that of "*The American Journal and Library of Dental Science.*" For a period of ten years this society conducted the Journal, Dr. Harris remaining continuously its chief editor, assisted by others, until 1850. After this date it was transferred to and conducted by him, as a personal enterprise, until his death, which closed his editorship of twenty years' standing, during which time he was assisted by E. Parmly, S. Brown, E. Maynard, A. Westcott, W. H. Dwinelle, A. A. Blandy and A. Snowden Piggott, associate editors.

Dr. Harris was a voluminous and able writer and contributed many valuable papers to the Journal's pages, among which were *Treatises and Essays on: Abrasion; Aberration of Position; Alveolar Abscess; Amalgam Fillings; Anesthesia; and Antrum; Arsenic for Destroying Nerves; Diseases of the Dental Pulp and Their Treatment; Dental Caries; Third Dentition; Continuous Gum Work; Extraction of Teeth; Rapid Filling of Teeth; Gold Foil; Hemorrhage; Plaster Impressions; Instruments for Holding the Tongue; Materials for Filling; Memoir of A. Nasmyth; Fluids in the Mouth; Treatment of Nerves in Teeth; Salivation from Amalgam; Dissertation on the Diseases of the Maxillary Sinus; Physiological Characteristic of the Tongue; Observations on the Qualifications Necessary to a Practitioner of Dental Surgery and on the Manner in Which They Should be Obtained; Cleanliness of the Teeth; Monograph on the Physical Characteristics of the Teeth, Gums, etc., and Spontaneous Inflammation of the Alveolar Dental Membrane, etc.*

Dr. Harris was the first to respond to the call of Dr. H. H. Hayden to organize the American Society of Dental Surgeons, and was one of its most ardent and loyal supporters. It was on his motion that the convention to organize a society "*resolved that a National Society of Dentists be formed,*" and he was the chairman of the committee to prepare the society's first con-

stitution. He was also elected the society's first Corresponding Secretary. In 1856-7 he was elected President of the American Dental Convention.

Dr. Harris, with Dr. Horace H. Hayden's advice and assistance, with broad views of the future needs of his profession and an untiring ambition to better its condition, conceived the organization of a dental training school as an adjunct to the medical department of the University of Maryland, to whose faculty he made overtures which were however, rejected. They feared that chartering a college for dentists would prove detrimental to the interests of the medical college, and strenuously opposed the movement, giving as an excuse "*that the subject of dentistry was of little consequence, and thus justified their unfavorable action.*"

Not disheartened, Dr. Harris went to New York City and consulted the leading men of the profession, and with their aid endeavored to establish a chair of dentistry in one of the New York Medical Colleges. Meeting with discouragement, but stimulated with renewed energy, he returned to Baltimore, and during the winter of 1839-40, almost entirely unaided, he secured the signatures of representative citizens to a petition to the Legislature of Maryland for the incorporation of a College of Dental Surgery at Baltimore. After numerous difficulties and considerable opposition by jealous medical rivals, which he finally overcame, the charter was granted, and with the aid of Horace H. Hayden, Thomas E. Bond and H. Willis Baxley he organized the Baltimore College of Dental Surgery, of which he was the first dean. He was also professor of Operative Dentistry and Dental Prosthesis, and on the death of Dr. Hayden was elected President of the college. The college had the support of the members of the American Society of Dental Surgeons, who, at the first meeting, New York, Aug. 20th, 1840, on motion resolved "*that the society approve of the establishment of the Baltimore College of Dental Surgery, and will co-operate with the other friends of that institution in promoting its designs.*"

Dr. Harris received the honorary degree of *Doctor of Medicine* from the Washington Medical College at Baltimore, of which he was a professor in 1838. His *D. D. S.* was obtained from the American Society of Dental Surgeons, all of whose members were granted a diploma from the society, which entitled the holder to the title of Doctor of Dental Surgery.¹ The honorary degree of Doctor of Dental Surgery was also conferred on him February 28, 1854, by the Philadelphia Dental College.

He had a number of honorary degrees conferred upon him by professional,

¹ American Journal of Dental Science, Vol. I, 1839, p. 169.

literary and historical societies. The degree of *Master of Arts* was conferred upon him by the Maryland University. He was an active member of the Maryland Historical Society. Harris, as token of high esteem for distinguished professional labors and personal merit, was made an honorary member of the Virginia Society of Surgeon Dentists, Oct. 11, 1842. The Harris Dental Association of Lancaster, Pa., organized June 21, 1867, with Dr. John McCalla as President, was named in his honor.

Chapin Aaron Harris was married Jan. 11, 1826, to Lucinda Heath, daughter of the Rev. Barton Downes Hawley, of White Chimneys, Loudoun Co., Va. Her mother was Katherine Heath, whose ancestor, the Roman Catholic Archbishop of York, refused to take part in Queen Elizabeth's coronation. Both families, the Heaths and Hawleys, were of high social position.

The Carmichaels of Maryland and Virginia, the Carys of North Carolina and the Sturgis family of Kentucky were also relatives of Harris. His maternal grandmother was a Chapin, and for her brother he was named. To Dr. and Mrs. Harris nine children were born, viz.:

Darwin Barton, who died young; Ozella Louisa, who married Alfred Addison Blandy, M. D., D. D. S., an Englishman by birth, living at Zanesville, Ohio, and later at Baltimore, where he was associate editor, with Dr. Harris, of the *American Journal of Dental Science*; Zairah Cazilda, who married Louis Rimy Mignot, an artist of New York; Mary Caroline, who died young; Chapin Bond Harris; Alice Elizabeth; Irvan Lamer; Helen Pendleton Harris, and Anne Merideth Harris.

The latter two are the only surviving children of Dr. Harris, and now reside in London, England.

He was correspondent and friend of many eminent public and professional literary men. He was a diligent reader and student and collected a large and valuable private library of many rare books, the finest in Baltimore at the time, excepting the Bishop's.

He kept up an extensive correspondence with authors and publishers in the principal cities of Europe, and had standing orders for anything old or new appertaining to dental science and art, all of which was gathered at his own expense.

He loved art and literature. He was a devoted admirer of Sir Walter Scott, and knew a great part of "Marmion" and "Lady of the Lake" by memory; he also greatly admired Byron's poetry. One of his favorite works was Napier's "History of the Peninsular War"; Rollin's "Ancient History" was another work he much admired; also Motley's "Dutch Republic" and

Macauley's "History" and Agnes Strickland's "Queens of England." He was an enthusiastic chess player, devoted to young people, and the playfellow of all children. In all, he was a very lovable character, and described by his children "as a most tender and devoted husband and father, and sincere friend; devoted to all good, public-spirited benevolent works." He loved animals and was especially fond of horses and dogs.

He was extremely generous, and assisted his professional brothers and the poor liberally. He literally went about doing good. He brought up and educated nine children besides his own, and for years took care of and supported a sister and her son and a sister-in-law and her son. He kept "open house" and entertained many eminent men as his guests. Amongst his personal friends were Rufus Choate, Edward Everett, Longfellow, Lowell and Henry Clay, with whom he corresponded for years.

At an early age he was deeply impressed by a sermon at a Methodist Episcopal church, and was induced to join it. He was a deeply religious man and a strong advocate of temperance. He was large-minded, and so free from sectarian bias that he numbered among his intimate friends Roman and Episcopal clergymen and men attached to various Protestant bodies. During his last illness they all visited him constantly, and once five including a Roman priest, chanced to meet on his doorstep. He was especially fond of the Episcopal church, and was in the habit of attending it.

Dr. Harris is described as a remarkably handsome and intellectual looking man, six feet two and one-half inches in height; broad shouldered and finely proportioned, of distinguished carriage, and with a benevolent, kindly expression; he was courteous after the old school of polished gentlemen. His hair, naturally dark, became gray early in life. His eyes were of hazel color. In politics he was an old-fashioned Whig and an enthusiastic Mason, high in its degrees. A few years before his death he bought a small place near Baltimore, where he spent his leisure, enjoying nature, of which he was a great lover. Dr. Harris' death occurred on Michaelmas Day, Sept. 29th, 1860, and was due mainly to overwork. After a hard day's labor with professional duties and in the lecture room and infirmary at the college he would write nearly all night, revising his "Principles and Practice of Dental Surgery" for a new edition. This continued extra work so overtaxed his energies that he was ill for eight months, suffering acutely with an obscure disease of the liver that finally caused his death in the midst of his usefulness, a martyr to his professional duties, and was buried in Mount Olivet Cemetery,

Baltimore. On his unpretentious tombstone his Christian faith is engraved: "E mortuis resurgam" (I shall rise from the dead).

In recent years bronze memorial tablets to the memory of Hayden and Harris have been placed in both the Baltimore College of Dental Surgery and the Dental Department of the University of Maryland.

Liberal to an extreme in life, Dr. Harris failed to leave his family well



Memorial Tablet of Hayden and Harris.

provided for after his death. Shortly after that event a memorial meeting was called in New York, Oct. 8, 1860, at which fifty prominent dentists attended, and a public subscription—known as the "Harris Testimonial Fund," was started for the relief of his family. A committee was appointed for this purpose with Dr. Eleazar Parmly as treasurer of the fund. After canvassing the profession for some months, at much expense, the committee reported that nearly one thousand dollars had been subscribed but that about nine hundred dollars has been expended in collecting it—the balance of \$85 was sent, with a note from Dr. Parmly explaining it, to Mrs. Harris. Dr. E.

Parmly Brown, then a young man, being the messenger, who says she read the note and when handed the gold exclaimed "My God! and is this the gratitude of the dental profession for Chapin A. Harris, who laid down his life in its behalf? Take back this beggarly gift, I spurn it." She later moved to London, England, and there died in straitened circumstances.

Dr. Eleazar Parmly truly said of him, at the time of his death, "He has labored more arduously as a practitioner, more untiringly as a writer, and more devotedly as a teacher of the principles and practice of dental surgery than any person who has in any way or in any country been connected with our professional art."

His unwearied labor and sacrifice of time and health for the advancement of his profession; his industry as a writer and editor; his untiring efforts in building up the first dental journal, the first dental society, and the first dental college in the world's history—the three most important factors in our professional existence, all of which can be traced to his energy and foresightedness, made him a martyr to the profession that he honored, and that now honors him.

The facts obtained in this sketch were obtained from:

Dental Cosmos—Vol. II, p 220-274; Nov. and Dec., 1860.

American Journal Dental Science—II Series, Vol. X, 1860, p 588-592.

International Dental Journal—Vol. 13, p. 920, Dec., 1892.

Pennsylvania Journal of Dental Science—Vol. I, 1874, p 36-39 Port.

New York Dental Journal—Vol. 3, 1860, p. 249-255.

Dental Register of the West—Vol. XIV., 1860, p 311; Vol. XV., 1861, p 79-90.

Ohio Journal of Dental Science—Vol. VII., 1887, p 249-254 Port.

Dr. A. J. Volck, Baltimore; student of the subject of this sketch.

Dr. F. J. S. Gorgas, Baltimore, and the daughters of Dr. Harris, residing in London.

THOMAS EMERSON BOND, A. M., M. D.

ONE OF THE FOUNDERS OF THE BALTIMORE COLLEGE OF DENTAL SURGERY. A
PIONEER TEACHER AND AUTHOR OF DENTAL MEDICINE.

Thomas Emerson Bond, Jr., was born Nov. 5th, 1813, in Baltimore, Md. He was the son of Rev. Dr. Thomas E. Bond, Sr., a practicing physician, who later removed to New York, and became editor of "*The Christian Advocate and Journal*." His mother was Christiana Birkhead, a daughter of Dr. Solomon Birkhead, also a prominent physician of Baltimore. T. E. Bond, Jr., took the degree of A. M. in the Baltimore City College in 1830, and immediately became a medical student of his father, assisting his father during the severe cholera epidemic of 1832, which caused the death of many citizens of Baltimore. In 1834 he graduated with the degree of M. D. from the Medical School of the University of Maryland, of which his father was one of the founders. In 1838 he assumed entire charge of his father's practice, the latter having retired. The same year he married Annie, daughter of George Morris, a Philadelphia merchant, later a resident of Baltimore. In 1839 he became associated with Drs. Horace H. Hayden and Chapin A. Harris and H. Willis Baxley in the organization of the Baltimore College of Dental Surgeons, in which he held the chair of Special Pathology and Therapeutics until his death, which occurred August 19, 1872. From 1842 to 1849 he was Dean of the Faculty. Through his professional acquaintance with Hayden and Harris he founded this the first dental college in existence. The first class of the college was held in one of the upper stories of a ware-house on Howard street, and consisted of twelve students which Dr. Bond denominated "the twelve apostles." His interest in this institution was that of a far seeing scientific man who was in advance of the medical concept of his time, in recognizing this unity and interdependence of the whole human organism. Dentistry at that period was the only specialty of the day. In it he saw possibilities of a great development, by linking it with a scientific study of the human system which would give it a place equal with other branches of the medical profession. To this end he enthusiastically contributed his knowledge of



Tho E. Bond P.M.D

medicine and his diagnosis of disease, his great personal enthusiasm and intellectual gifts. The majority of medical men in Baltimore at that time were opposed in the organization of a dental college, especially to its connection as a department of a medical college. T. E. Bond holding out, as a physician, a welcoming hand of the older profession, received the thanks and gratitude of those associated with him as founders of the school and as teachers in it. It is right and just that he should be honored by the dental profession, for likely if the real truth is told, his influence as a medical practitioner of standing in the establishment of the school in the face of so much antagonism and opposition, was as great or greater than any other man's connected with the institution.

As a delegate to the American Medical Association meeting in Boston, Dr. Bond contended for the admission of delegates from the dental college on equal terms with delegates from the medical colleges. It was in the Baltimore College of Dental Surgery that chloroform was first experimented with in Baltimore. The patient was a Mr. St. John, associate editor of "The Baltimore Patriot," for whom Dr. Chapin A. Harris extracted a tooth while the patient was under the influence of chloroform, in the presence of Drs. T. E. Bond, Washington Handy, J. W. Bond and C. O. Cone. Dr. Harris had received the formula for chloroform from the discoverer, Dr. John Simpson of England and had it filled by a local apothecary. The men present had each tried inhaling it but this was the first time they had given enough to produce complete anaesthesia. No one of these five knew that chloroform should be given on an empty stomach and the result of their experiment was disastrous to the plush upholstered chair and "turkey carpet."

Dr. Bond's connection with the dental school as a teacher led him to write and publish "A Practical Treatise on Dental Medicine, being a compendium of medical series as connected with the study of dental surgery to which is appended as inquiry into the use of chloroform and other anaesthetic agents," published by Lindsay and Blackiston and reached the second edition 1852, the third edition in 1863. This was a standard text book for dental students for many years, and opened a new era in the history of dental surgery. It pointed out the pathological relationship between diseased teeth and other parts of the body dealing as a whole with the anatomy, physiology, pathology and therapeutics of interest to the dentists. He contributed articles on various subjects in the medical journals. He likewise published a translation from the French of Lafoulous "Treatise on Theory and Practice of Dental Science," also a Treatise on Dentation from the French of Baume, 1841; both of these



Seal Baltimore College of Dental Surgery.

were published by the American Society of Dental Surgeons, as a part of the American Library and Journal of Dental Science, and a "Life of John Knox," which was published in *The Methodist Quarterly* and republished in England. He was a constant contributor to the magazines, dental, medical and religious. Dr. Bond was a Latin as well as a French scholar and was entrusted by his associates with the composition and authorship of the first dental college diploma. In 1834 he also published an article on "Malaria."

He was Professor of Materia Medica, Therapeutics and Hygiene in the Washington Medical University of Baltimore. In 1853 he gave up the practice of medicine, returning to his country place, "Kalmia" in Hartford county. He continued coming to the city to perform his duties in connection with the dental college, of which he was the last surviving member of the original faculty. These duties until his death shared his attention with the care of his large farm, which he brought to a high state of productiveness. He was a very religious man, and greatly interested in church work, being also a talented literary man. For a time he edited *The Episcopal Methodist* published in Baltimore, and later in 1870 founded *The Baltimore Christian Advocate* which afterwards merged with *The St. Louis Christian Advocate*, of which he was the Baltimore editor. In the M. E. Church he was known to his fellow churchmen as the "Rev." Dr. Bond, although he repeatedly declined the degree of "D. D." conferred on him by colleges. The title "reverend" was given to laymen of earnest christian character, who had a right on occasions to preach. He was survived by twelve children, eleven of whom are (in 1908) living. One of them, A. K. Bond, M. D., a practicing physician of Baltimore, also a brother, Dr. John W. Bond, a formerly prominent physician of Toledo, Ohio, who at this date (1908) is still living.

ELEAZAR PARMLY, M. D., D. D. S.

TRAVELER, DENTIST, EDITOR AND POET.

Eleazar Parmly was born in the village of Braintree, Vermont, March 13, 1797. He was the third of five sons of Eleazar Parmly, a farmer of old New England stock, four of whom (Levi Spear, Samuel Wheelock, Jahial and Eleazar) afterward became dentists.

His early youth was spent on his father's farm, attending country school during three months each winter, until he reached the age of twelve years, when he went to Montreal to school, remaining there until the war of 1812 compelled him to return to his native village. At the close of the war, his parents emigrated westward, locating at Perry, Ohio, on Lake Erie's shore.

"Where with scanty means and stinted daily food,
He helped his father—felled the trees and burned the heavy wood,
No aids to meet this forest, dark and dire,
But naked hands, ambition, axe and fire."

Clad in linsey-woolsey, helping clear the rough land and plant and care for the crops, he found time to work with tools, an unusual aptitude he inherited from his father.

When thirteen years of age he made a dove-tail clothes chest in hardwood that was a very creditable piece of work, showing painstaking and patience. He was studious, and at sixteen passed a successful examination for district school teacher. His success was such that at the close of the year he was voted extra pay. His experience as teacher he always considered the most useful formative period of his life, many of his pupils being older than he, which materially developed him.

At seventeen he learned the printer's trade, beginning as assistant, compositor and reporter upon the first newspaper published in Montreal. About the time he reached his majority, he began the study of dentistry with his elder brother, a young dentist of Boston, Levi Spear Parmly, to whom he was largely indebted for some of youth's noblest impulses. Levi had received his early instruction from a Dr. Petrie—an English dentist—and later from Dr.



G. D. Smith

John Randall of Boston, whose advice and friendly interest contributed to his future professional success.

Young Eleazar was first employed in carving and making teeth from the tusks of sea-horse in his brother's office. After several months at this work he went to Quebec, remaining there a short time. Ambitious to gain more knowledge of the profession of his choice, he decided to make a tour of the Western and Southern portions of the United States. He was accompanied by his brother Levi while on this tour, which lasted four years. His main work consisted of extracting, cleaning, making artificial teeth and filling teeth with tinfoil. In his travels he met patients of Mr. George Waite of London, L. Koecker, H. H. Hayden, and Edward Hudson, all of whose work was skillfully executed. The work that impressed Parmly most in these patients' mouths was the the gold fillings of these men, the first of the kind he had ever seen.

At Lexington, Ky., in the mouth of a Frenchman, he saw for the first time a mineral tooth which he thought far superior to teeth carved from sea-horse tusk or cattle's teeth secured at the slaughter houses. At New Orleans he also saw a gold plate that had been swaged to a model, the work of a dentist in London. These operations excited Parmly's admiration for the possibilities of his art, and an ambition to improve himself, and, in 1820, he embarked for London, with the desire to gain further knowledge. Upon his arrival, he procured all the books on dental surgery published in the English language, but in the reading of these he gained little information, as they told not how to perform the operations, but of the results to be obtained.

He called upon many distinguished in the profession, of whom he had read or heard. They received him politely and talked with him freely. Especially does he speak of Mr. Gray of Old Burlington street, a thoroughly educated surgeon, "one of the first mechanical dentists in the world." Mr. Gray urged the necessity of the dentist possessing mechanical skill before he could do justice to the profession or the patient.

After acquiring some valuable knowledge, he next went to Paris, where he also called on men of prominence in the profession, to be received again with marked attention, but they failed to give him any opportunity to watch their operations until he met J. C. F. Maury (a brother to F. Maury, the author of *Maury's Dental Surgery*), an acknowledged expert in dental porcelain work, and author of a little book upon porcelain, dated about 1820. Parmly speaks of him as "a great and good man and dentist to the King's

household." Parmly made arrangements with the gentleman to complete his studies with him.

There is a little story that Parmly told regarding his experience with M. Maury, who took him directly into his work-room, the first time any dentist had so done, and immediately began to show him specimens of his work, bottles of prepared bodies and porcelains, explaining how they were prepared and the formulas. Parmly reminded him they had not yet agreed as to terms. Maury cut him short by saying, "My friend that which I am telling you makes me no poorer, and if it is of any advantage to you I shall be very glad," and went on with his explanations. Parmly finally got him down to business and a contract was made out and properly signed, calling for a certain amount of instruction for a certain cash consideration. Maury seemed to consider the business part a bore, and as soon as the contract was signed, folded the paper up and put it away. Parmly says he did not think he gave it any further thought. He not only gave him the instruction asked for, but was constantly aiding him with valuable suggestions, and after the time of contract had expired, he continued with him some time, being treated more as one of the family than as a student.

After the completion of this course of study, Parmly returned to London, where he became associated with his brother Levi Spear in the practice of dentistry with marked success. Here he had the opportunity of seeing the operations of the best operators, among whom was Mr. George Waite, whose gold fillings reached Parmly's ideal as to perfection in dental fillings. He described Mr. Waite as "the Hudson of England."

In London he quickly attained prominence. Amongst his personal friends and clients who contributed to his success were Dr. Baillie, Sir Astley Cooper and Sir Anthony Carlisle, physician and surgeon to His Majesty George the Fourth, and Sir Benjamin West, president of the Royal Academy. After two years, impaired health caused by the climate and love of home and country, caused him to return to America, in 1823. He settled permanently in New York city, where he soon acquired an extensive and remunerative practice, and for more than thirty years stood at the head of his profession.

To Eleazar and Levi Parmly is ascribed the honor of having first taught in America "the corrosive action of acids," as the cause of dental caries. This theory was first published by Salmon of London, 1664.

Parmly was one of the first, if not the first, to advocate regular examination of the teeth of children at academies and boarding schools and the performance of such operations as they required at stated intervals. He was also

first to advocate the use of soft wood and gum elastic to wedge teeth. Parmly strongly condemned the use of "*Royal mineral succedaneum, mineral paste, diamond cement, and every other vile composition in which there is a mixture of quicksilver*" and recommended "*gold as the only permanent stopping material*," saying he "had inserted only one amalgam filling," and adding emphatically, "*I would not touch the nasty stuff.*" Later in life he could not prove that it was injurious when the subject came to final discussion before the American Society of Dental Surgeons, of which he was one of the founders, and, in 1847, the president. He succeeded Dr. H. H. Hayden at his death, filling that office until 1853. In 1822 Parmly first advocated the necessity of making the surgical and mechanical branches of dentistry distinct. He believed each department should be practiced as a specialty and that it was impossible for one man to excel in all departments. In 1829 he gave up the prosthetic part of his practice, relinquishing the same to his brother Jahial, and devoted his energies to operative dentistry at which he greatly excelled.

He gave to the profession many ingenious instruments, among which is the Parmly improved forceps and turnkey for extracting teeth. This instrument he made while with Maury in Paris. This key was much smaller than those in general use.

In 1839 a movement toward elevating the standard of the profession and its educational interest was inaugurated, in connection with which was commenced the publication of the *American Journal and Library of Dental Science* at Baltimore, the first dental journal published in the world's history.

Drs. E. Parmly, Elisha Baker and Solyman Brown were the publishing committee and chief promoters—Dr. Chapin A. Harris and Eleazar Parmly the first editors. This publication was part of the movement which brought about the founding of the first dental college by Harris and Hayden at about the same time.

Parmly had a high conception of professional requirements and offered to "receive students and render them fit for practice for \$1,000; \$700 in any other city in Great Britain or America, and \$500 for foreign practice." At this time, there being no colleges, this was a customary practice.

At the second Commencement Exercises of the Baltimore College of Dental Surgery, Feb. 18, 1842, the honorary degree of *Doctor of Dental Surgery* was conferred on Parmly. In 1851-2 he was *provost of this institution*. The Warsaw University, Canton, Illinois, conferred the honorary degree of M. D. upon him in 1840. He was President of New York College of Dentistry,

1867-8, and first President of a college faculty association organized at Philadelphia, October 17th, 1866.

His best literary work was an essay on "The Disorders and Treatment of the Teeth," published simultaneously in London and New York in 1822. He re-published Hunter's celebrated "Treatise on the Teeth," with notes, giving his opinion of this work and the methods it advocated. He also added "notes," 1833, to Dr. Solyman Brown's poem "Dentologia," "a most curious and singular production, extensively read and much admired." Dr. Brown was his dental student, and friend for more than forty years.

In 1867, at the age of seventy-one, he published a volume, 600 pages, of his original poems, entitled "Thoughts in Rhyme," dedicated to his children. To read these poems is to appreciate the man for his true worth.

He was married July 17, 1827, to Miss Anna Maria Valk Smith, an adopted daughter of Mr. John M. Ehrick, a broker. To them were born eight children, Anna and Ehrick, twins (Anna was a talented artist and married T. P. Rossiter, the distinguished artist. Ehrick, the only son who reached maturity, practiced dentistry in New York until he retired, 1889. He died in 1908). Mary Montague (named for the best friend of his early youth—Basil Montague, Queen's Counsel of London, son of John, Fourth Earl of Sandwich, and First Lord of the Admiralty); Julia, Louise C., and three sons who died in infancy.

In 1861, after the death of his wife, he retired from the active practice of his profession, and sought rest and comfort in traveling, making a number of tours of Europe, where he was welcomed in the best social circles by the most distinguished persons. He was received by Napoleon the Third and the Empress Eugenie and Pope Pius the IX; Robert and Elizabeth Browning; Dr. Birney of London; Barry Cornwall; John Mitchell, Queen's Librarian; Drs. Cartwright, Nyesmith, Rogers, John Tomes, Sr., Thos. Bell, T. W. Evans of Paris, and Henry Inman, the portrait painter.

He was fond of society and for years his home was the mecca of distinguished literary people and artists from all countries and of all creeds. He was an intimate friend of President Abraham Lincoln, who entertained him on various occasions at the White House; other close friends were Horace Greeley; Hiram Powers, sculptor; Healy, the artist; Buchanan Read, poet and artist; Dr. Valentine Mott, the celebrated surgeon, and Chas. Toppan, the engraver.

He was said to be one of the handsomest and most distinguished looking men in America, in his early manhood. He possessed the talent to a marked

degree of making friends and patients out of the most desirable people, and seemingly everything he touched turned to gold. He excelled in combining a Chesterfield manner with business acumen. He inherited from his wife three lots on Broadway and Maiden Lane, New York City, which were recently sold to a building syndicate for one million dollars; he left at his death a fortune of three million dollars, acquired through the rise in real estate.

He took an active interest in prisons and prisoners. The first meeting of the Prison Association of New York was held in his house and many meetings thereafter. He also took a lively interest in temperance work and made occasional addresses. He was a total abstainer from all liquors and once remarked to the Sunday school of the First Campbellite Baptist Church of New York, which he helped build and was greatly interested in, that "the strongest thing that ever passed his lips was a cup of coffee."

He was six feet in height and very athletic and a superior and fearless horseman. He was dignified in manner, very domestic and overflowed with demonstrations of affection to those he loved.

It is not a known fact that Dr. Parmly was an actor in the first tragedy of an American heiress being sacrificed at the shrine of European nobility. He was engaged to marry Miss Mary Astor, the only daughter of the head of the original John Jacob Astor family. This stern parent had set his heart on his daughter marrying a nobleman. This being known, the engagement of his daughter and Dr. Parmly was kept secret as possible, only being known to Miss Astor's mother and Parmly's bosom friend, Dr. Solyman Brown, who related these heretofore unpublished facts before his death.

Pere Astor suspected the attachment and suddenly ordered his daughter to prepare for a trip with him to his chateau in Switzerland. Suspecting her father's haste, she parted with her betrothed, agreeing to write him to come to Paris at once, if her father was bent on forcing her to wed a nobleman, saying she would marry Dr. Parmly even if her father disinherited her. The father formed a marriage agreement with Baron von Romph and notified his daughter the day the wedding would take place. Dr. Parmly was notified at once, but arrived in Paris a few days too late, but in time to hold a farewell, tearful interview with the baroness before her departure for Germany, where she died a few months after with a broken heart.

The name of Parmly frequently appears in the records of dental history — Jahial, of New York; Ludolph, of Mobile, and David R., of St. Louis and New York, were first cousins of Dr. Eleazar Parmly. Henry C., of Rome, Italy; Samuel P., of Paris, France; George W., who practiced in New Orleans, The Hague, Paris and London, were his nephews.

Eleazar Parmly died of pneumonia, at New York, Sunday, December 13th, 1874—mourned by all who knew him—at the age of 77 years, and was buried in Ransom Cemetery, Shrewsbury Township, Monmouth County, New Jersey. His brilliant mind and careful judgment added much of merit to the profession. Reared in an obscure village in the Green Mountains, in the old puritanical style, by humble parents, he entered the business walks of life empty-handed, with neither money nor influential friends, but with heart attuned to the beauties of nature and mind determined to excel at whatever he attempted; from poverty and humble origin he worked his way to, not only the highest professional standing, but to the highest social circles, to be welcomed by the most intellectual men and women of Europe and America.

He was a Christian man of fine sensibilities, possessing a refined and cultured manner and generously endowed as a poet and lover of letters—a literary man of marked ability with high ideals in dentistry. It is said his distinguishing characteristic was a *scrupulous attention to little things*, which, joined with integrity and a cultivated taste, laid the foundation both to his fortune and his popularity as a dentist. His eminent usefulness to his profession cannot well be overestimated; he was a seeker after knowledge and a teacher of high attainments. Spurred by ambition, he toiled unceasingly and traveled many miles in the pursuit of knowledge, that he might equal the foremost of his profession. He took as his motto the words of Ambrose Paré: "He that would perform any great and noble work must apply himself diligently to the knowledge of the subject."

The facts contained in this sketch have been obtained from:

Dr. Ehrick Parmly, Oceanic, N. J., son of the subject of this sketch.

Dr. E. Parmly Brown, New York, and Dr. Eleazar Parmly's "Thoughts in Rhyme," printed by Thos. Holman, New York, 1867.

"America's Successful Men," edited by Henry Hall, 1895.

"American Journal of Dental Science"—Vol. III., Sept., 1842, page 1.

"Dental Cosmos"—Vol. XVII, Jan., 1875, page 21.

"Dental Register"—April, 1855, page 222.

"American Journal of Dental Science"—2nd Series, Vol. II., page 8.

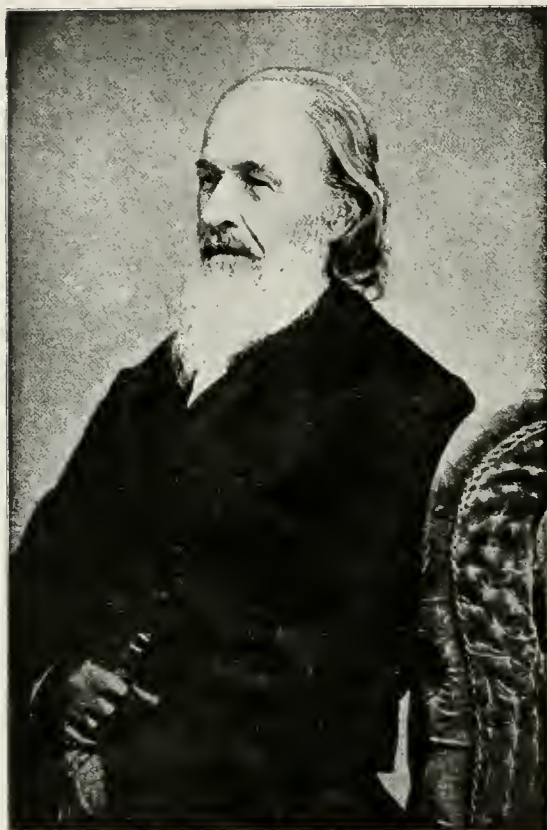
SOLYMAN BROWN, A. M., D. D., M. D., D. D. S.

CLASSICAL INSTRUCTOR—AUTHOR—SCULPTOR—MINISTER AND POET LAUREATE
OF THE DENTAL PROFESSION.

Solyman Brown, son of Nathaniel and Thankful (Woodruff) Brown, was born at Litchfield, Connecticut, November 17, 1790, of puritan parentage. His early life was spent in his native village, where he was known as an earnest student and book-lover. In 1810 he entered Yale College to prepare himself for the ministry. He graduated from that institution in 1812, subsequently receiving the degree of Master of Arts. On September 30, 1813, he became a Licentiate Doctor of Divinity, this degree being conferred on him by Litchfield North Association of the Congregational Church of Connecticut. For seven years he combined the duties of minister and teacher, but on account of a severe bronchial trouble, he, for a time, abandoned public speaking and devoted his time to classical instruction.

In 1822 he moved to New York City, where he was engaged as Professor of Languages in Madam Okil's Young Ladies' Academy. Here he met Miss Elizabeth Butler, daughter of Amos Butler, Esq., for many years editor and proprietor of "*The New York Mercantile Advertiser*," whom he married in 1834. About this time he embraced the doctrines of Emmanuel Swedenborg and was installed as regular preacher of the New Jerusalem Church of New York City. The first twenty-five years of his career were devoted to the ministry, writing and teaching, which he continued until 1832, when he became acquainted with Dr. Eleazer Parmly, who was at that time distinguished as a dentist. Being much of the same temperament—poetic and idealistic—they naturally affiliated and their friendship developed to the extent that Dr. Parmly invited Mr. Brown to become a member of his family and instructed him in his profession. Mr. Brown was quick to master the art, and soon became an enthusiast in his new calling, contributing many valuable and interesting articles to general and dental literature.

In 1818 he published at New Haven a volume containing "An Essay on American Poetry," together with several miscellaneous articles, which attracted



Lyman Brown.

much attention and criticism, he taking the ground that America could and would produce first-class poets immediately, in counterdistinction to the assertion of the Scottish reviewers that a new country could not furnish the material for a poet of the first rank. William Cullen Bryant, then at Yale, took the first prize in a thesis claiming the Scottish reviewers were right and Solymán Brown was wrong. Bryant lived to prove his thesis wrong by his own poetic genius and Dr. Brown lived to see Longfellow's bust in Westminster Abbey. He wrote a poem in five cantos in blank verse entitled "Dentologia, a poem on the diseases of the teeth and their proper remedies," with notes by his preceptor, Dr. E. Parmly, to whom the poem was dedicated, and who issued it in book form in 1833. This classical poem was a marked literary production, considering the subject, and was extensively quoted at the time and favorably commented on by the best critics and writers in the profession, and had a great influence in elevating dentistry as a profession. A portrait of a young lady, in verse, showing the value of the teeth to the human form divine, are here quoted to show the beauty and technique of the poem.

"Behold Urilla, nature's favored child;—
Bright on her birth indulgent fortune smiled;—
Her honored grandsire, when the field was won,
By warring freemen, led by Washington,
Nobly sustained, on many a glorious day,
The fiercest fervors of the battle-fray;
Survived the strife, and saw at length unfurled
Our union-banner floating round the world;
Then found a grave, as every patriot can,
Inscribed 'Defender of the rights of man.'

"Her sire, whose freighter ships from every shore
Returned with wealth in unexhausted store,
Was doubly rich—his gold was less refined
Than the pure treasures of his noble mind.
And she herself is fair in form and face;—
Her glance is modesty, her motion grace,
Her smile, a moonbeam on the garden bower,
Her blush, a rainbow on the summer shower,
And she is gentler than the fearful fawn
That drinks the glittering dew drops of the lawn.

"When first I saw her eyes' celestial blue,
Her cheeks' vermillion, and the carmine hue,
That melted on her lips:—her auburn hair
That floated playful on the yielding air:
And then that neck within those graceful curls,

Molton from Cleopatra's liquid pearls;
I whispered to my heart—we'll fondly seek
The means, the hour, to hear the angel speak;
For sure such language from those lips must flow,
As none but pure and seraph natures know.

" 'Twas said—'twas done—the fit occasion came,
As if to quench betimes the kindling flame
Of love and admiration—for she spoke,
And lo, the heavenly spell forever broke
The fancied angel vanished into air,
And left unfortunate Urilla there:
For when her parted lips disclosed to view,
Those ruined arches, veiled in ebon hne,
Where love had thought to feast the ravished sight
Or orient gems reflecting snowy light,
Hope, disappointed, silently retired,
Disgust triumphant came, and love expired!

"Let every fair one shun Urilla's fate,
And awake to action, ere it be too late;—
Let each successive day unfailing bring
The brush, the dentifrice, and, from the spring,
The cleansing flood—the labor will be small,
And blooming health will soon reward it all.
Or, if her past neglect preclude relief,
By gentle means like these; assuage her grief;
The dental art can remedy the ill,
Restore her hopes, and make her lovely still."

This poem was followed in 1838 by another in blank verse entitled "Dental Hygeia, a poem on the health and preservation of the teeth," dedicated to the author's brother, Dr. A. Woodruff Brown, a dentist, who published it in book form. It treated of the laws of health and was considered by many as equal or superior to "Dentologia." The most important contribution of Dr. Brown's was "A Treatise on Mechanical Dentistry," which originally appeared as a serial in the "*American Journal of Dental Science*" and was at the time the most practical work published in America. It was complete, well written and fully illustrated for that period. It called down on his head a great amount of criticism, because at that time it was regarded as having exposed secrets of the profession. It will be remembered by those familiar with the methods of that day, that most dentists regarded the knowledge in their profession as secret and were jealous of whomsoever might become a competitor;

consequently most dental offices and laboratories were closed to visitors, so when Dr. Brown's book appeared he was harshly criticised for making public the things considered secret. Dr. Elisha Townsend, of Philadelphia, not so liberal minded in those days as he became later in life, wrote Dr. Brown that he "was a fool for giving away to the world the valuable secrets that it took years of hard labor to obtain." This work was later published in book form and also was republished in the first three chapters of F. Maury's "Treatise on the Dental Art," translated by J. B. Xavier, 1843.

Frequent essays appeared in the "*American Journal of Dental Science*" from Dr. Brown's prolific pen; some of them are: "Of the Osseous Union of the Teeth," "Arsenic," "Remarks on Professional Morality," "Extraction of Teeth," "On the Pursuit of Professional Eminence," "Jaw Fractures," "The Necessity of Regulating the Natural Teeth," "Materials for Fillings," "Premature Dentition," and the reviews of numerous works on dentistry. During a period of sixty-five years Dr. Brown contributed to literary periodicals of his locality many hundred poems, some of which appear in a work called "The Poets of Connecticut." He was a frequent contributor to the "*New York Mirror*," and during the Rebellion, published a series of War Lyrics in William Cullen Bryant's "*New York Evening Post*." Dr. Brown was a charter member of the American Society of Dental Surgeons. At his house, No. 13 Park Place, the society met and adopted its constitution and by-laws. He, being the only classically educated man in the profession at that time, was chosen recording secretary, which office he held for five years. He was one of the committee appointed to draft the constitution and by-laws of the society on its organization. He and Chapin A. Harris were the principal promoters of the "*American Journal of Dental Science*," the first issue appearing June 1, 1839. Drs. E. Parmly, Elisha Baker and Solyman Brown were the publishing committee. Its first editors were Dr. E. Parmly, of New York, and Dr. Chapin A. Harris, of Baltimore. Dr. Parmly retired after the first year and Dr. Brown succeeded him as co-editor with Dr. Harris. He became a regular contributor to the "Journal's" pages. About this time Dr. Brown was inter-Jahial Parmly and Dr. Harris, who returned to Baltimore, and with Doctors ested in a concerted effort for the elevation of his profession. He was associated with Hayden, Harris, Parmly and others in establishing a dental chair in a New York City medical college, and the failure to accomplish this resulted in the organization of the first dental college at Baltimore, 1839. It was at a meeting of prominent New York dentists that Dr. Brown suggested "Why not have an independent dental college?" This suggestion was seconded by Dr.

Hayden, Bond and Baxley founded the Baltimore College of Dental Surgery. This institution, recognizing Dr. Brown's ability and professional worth, conferred the honorary degree of Doctor of Dental Surgery on him February 10, 1842.

Dr. Brown is recognized as the inventor of many ingenious instruments and methods. In 1840 he introduced asbestos as a material for pulp capping. From 1853-4 he was editor of the "*Semi-annual Dental Expositor*," published in Baltimore, in which his "Treatise on Mechanical Dentistry" was published in full.

Dr. Brown practiced his profession in New York City about twenty-eight years. In 1844 on account of failing eyesight, he sold his practice to Dr. Charles C. Allen, and retired to join a Fourieristic Community, which at that time was very much lauded and fostered by his friend, Horace Greeley. But the Community had a short life. It was located in Leraysville, Northern Pennsylvania. When it broke up Dr. Brown had sustained great pecuniary loss and was in a dilemma. He had sold his practice and agreed not to return to it for a period of ten years, and thus he was deprived of his former clientele and must seek his vocation in other fields. About that time he was associated with Dr. Miles of Ithaca and also practiced in Owego. Two years after that, in 1852, Dr. Brown returned to New York City, and had opened a depot for the sale of dental materials.

Dr. Brown became somewhat restive as a business manager, and, anxious to resume his dental practice, he obtained the consent of Dr. Allen to resume without violating the agreement. It was at that time he formed a partnership with Dr. Norman W. Kingsley and Dr. Samuel Lockwood. Dr. Lockwood took charge of the operating department, and the department of artificial work was assigned to Dr. Kingsley. Dr. Brown, to use his own language, said that he "should be occupied in the drawing room, receiving callers, and in the general management of the business." But Dr. Brown, being then sixty-two years of age, hardly realized that in his absence his old clientele had drifted entirely from him. The arrangement was not exactly a prosperous one for either of the three partners, and so, at the end of the first year it was dissolved by mutual consent. Dr. Brown, in the meantime, had not given up his connection with Mr. Stockton, and so continued the oversight of that business for some little time; until in 1854 he with Dr. C. S. Miles and Dr. J. M. Crowel, organized the New York Teeth Manufacturing Co., which went out of business during the Civil War. Dr. Brown, then being more than seventy years of age, retired to Danby, N. Y., and became pastor of the Swedenborgian Church at that place. Here he remained until 1874, when he removed to Dodge Center, Min-

nesota, where he lived at the residence of his son-in-law, Judge C. D. Tuthill, until he died, February 13, 1876, at the age of eighty-six. His mental faculties continued clear and vigorous until his last illness, which was very brief. He was buried with the honors of the Masonic order—the Knights Templars—of which he had been a member for sixty years.

Dr. Brown was a genial and charming gentleman, of a domestic nature. He had eight children, viz.: Solyman W., E. Columbia (Mrs. C. D. Tuthill), Augusta W., Edward G., E. Parmly, Flora B. (Mrs. Eugene Pugdry), Helen B. (Mrs. Charles Sanford), Mary V. (Mrs. Harry E. Blake). His wife and five daughters and one son survive him. This son is Dr. E. Parmly Brown, of New York City. One of his grandsons, L. Parmly Brown, graduated in dentistry at the same college which conferred degrees upon his father and grandfather, this being the first, and probably still the only instance, where the D. D. S. degree has descended to three generations.

Dr. Brown was a man of refinement, very painstaking, and artistic in everything he undertook. He painted in oil and modeled in clay, and his dental work was of the first order. Especially is this so regarding his gold fillings, and his efforts in the manufacture of mineral teeth. When Dr. Norman W. Kingsley began practice in 1850 he lived in the house where Dr. Brown formerly boarded. In the parlor was a portrait bust in plaster modeled by Dr. Brown. Dr. Kingsley at that time had the most exalted idea of one capable of making a portrait in marble or its equivalent, and when told it was made by Dr. Brown, a dentist, it excited his ambition to emulate his example and was an incentive to him to pursue that line of work; in which, during the years that have followed, he has become famous as an expert in modeling and carving.

Dr. Brown took a leading part in the three great events that lifted dentistry from a craft to a profession, i. e., the organization of the first dental college; first dental journal and first dental society, and did a great deal more for dentistry than he has been credited with. He was a useful and ornamental member of the profession and did much to enhance our worth in the estimation of the laity.

The facts contained in this sketch have been obtained from:

Dr. E. Parmly Brown, New York, son of the subject of this sketch.

Dr. Norman W. Kingsley, New York.

Dr. Solyman Brown's poem "Dentologia"—Peabody & Co., N. Y., 1833.

F. Maury's "Treatise on the Dental Art." Translated by J. B. Savier, D. D. S. Lea & Blanchard, Philadelphia, 1843.

"Poets of Connecticut, with biographical sketches," edited by Rev. Charles W. Everett, Hartford, 1843—p. 187.

ELISHA TOWNSEND, M. D., D. D. S.

CO-ORGANIZER AND PRESIDENT OF THE AMERICAN SOCIETY OF DENTAL SURGEONS.
ORIGINATOR OF THE AMERICAN DENTAL CONVENTION. CO-ORGANIZER
AND FIRST DEAN OF THE PHILADELPHIA COLLEGE OF DENTAL SUR-
GERY. CO-ORGANIZER AND FIRST DEAN OF THE PENNSYL-
VANIA COLLEGE OF DENTAL SURGERY AND PRESIDENT
OF THE PENNSYLVANIA ASSOCIATION OF
DENTAL SURGEONS.

Elisha Townsend born at Philadelphia, July 16, 1804, was the oldest child of a family of seven born to Charles and Priscilla Townsend, both refined and cultured people, who held a conspicuous position among the "Society of Friends" in Philadelphia. After Elisha had finished his schooling, his father took him into his business of watch-making and taught him that trade, through which he acquired the delicate touch and mechanical dexterity which later served him so well in dental practice.

He afterwards went on the stage and made a favorable impression, but he soon discovered the society with which he was thrown was not to his taste, and after one season at New Orleans, in which his aspirations were not fulfilled, he relinquished the project and returned to Philadelphia.

In 1832, at the age of twenty-eight years, he began the study of dentistry, and soon commenced practice at Westchester, a small town near Philadelphia. In a short time he returned to his native city and established himself in the neighborhood of the then celebrated Dr. Edward Hudson. The acquaintance and friendship between these men was of short duration, as Dr. Hudson died the following year; however, Dr. Townsend, in later life, frequently acknowledged his obligation for valuable advice and suggestions given him by Hudson. Dr. Daniel Neall was also one of his early friends and advisers. Dr. Townsend was a skillful operator, and his manipulations were all of a high order of mechanical excellence.

Dr. James Truman, one of his students in 1854, says of him: "To see him fill a root canal with gold, then used exclusively, was to see perfection of manip-



Elisha Townsend

ulation. Notwithstanding all the changes rung upon cohesive gold since his day, I have never seen better or more artistic work than he did before his classes. He used to tell us that he placed his gold for immediate use in the oven over night. He could not explain why this was done, and some of us regarded it as a Townsend 'fad,' and not until Arthur gave us cohesive gold was it understood."

Dr. Edwin T. Darby, in answer to inquiry, says of him: "Elisha Townsend was a great dentist of his day. I occasionally see fillings that he inserted fifty years ago, and they are good. He was in the habit of putting his gold on a china plate and putting that into the oven of the kitchen range a half hour before he wanted to use it. He said that gold worked better when it had been warmed in the stove."

Dr. Townsend's ability as a ready and fluent speaker led to his being frequently called upon to deliver introductory and valedictory addresses at college commencements and to speak before dental societies. He was an equally able writer, and contributed to the journals numerous essays and articles, most of which were published in the "*American Journal of Dental Science*" and the "*Dental News Letter*."

He wrote upon such subjects as Amalgam, Amalgam Fillings, Advice to Those Who Use Amalgam, Dental Patents, Professional Etiquette, Filling Teeth, Inflammation of Dentine, Instruments for Holding the Tongue, The Duties and Proprieties of the Dental Practitioner, Professional Duties, The Status of the Dental Profession, Sponge Gold, Professional Fees, Speculations upon Inflammation of Dentine or Tooth Bone, etc.

Dr. Townsend took an active part in organizing the American Society of Dental Surgeons in 1840, and served as its First Vice-President in 1852-3. He succeeded Dr. Eleazar Parmly as President in 1854, continuing in that office until the Association disbanded at New York, August 7, 1856.

Immediately after this he aided the movement which resulted in organizing, at Philadelphia, August 2, 3 and 4, 1855, the American Dental Convention, a national organization which aimed to avoid that narrowness which had proved so disastrous to the American Society. He served as its Recording Secretary in 1856-7.

In local affairs he was far less active. Although the Pennsylvania Association of Dental Surgeons was organized in December, 1845, Dr. Townsend took no part in its proceedings until he was elected a member, February 14, 1851, about the time when, after surmounting many vexatious difficulties, the association had succeeded in arranging for a dental college in Philadelphia.

Thereafter, until incapacitated by ill-health, he labored unceasingly to make the new venture a success. He was an earnest advocate of the "strictly dental" college; by his influence in the profession and the community, and his faithfulness as a teacher, he assisted very much in demonstrating that dental science could be thoroughly taught by dental practitioners in dental schools.

The Philadelphia College of Dental Surgery was chartered and organized in 1852; he was chosen Dean and Professor of Operative Dentistry. This school held four sessions; it ceased to exist in 1856, on account of a dispute in regard to conferring degrees between the corporators and the faculty. Through the influence of Dr. Charles Hamilton, a former dentist, a new charter was obtained, the faculty resigned, and organized another college under the name of the Pennsylvania College of Dental Surgery, of which Dr. Townsend was also Dean, and Professor of Operative Dentistry during the session of 1856-7. After this session, on account of failing health, his active labors as a teacher ceased, and he was elected to the honorary position of Professor Emeritus of Operative Dentistry. He was elected President of the Pennsylvania Association of Dental Surgeons, October 2, 1855.

Dr. C. N. Pierce, another of his students in 1854, says of him: "Dr. Townsend was an able and impressive teacher; besides being thoroughly acquainted with his subject, he made his lectures very entertaining by his familiarity with Shakespeare and other authors. He was a man of great theatrical ability and much like our friend McKellops in recitations."

Dr. Wm. Trueman says of him: "He was instrumental in bringing about the change from the large-handled and clumsy instruments formerly used to those more in accord with the delicate use to which they are put. He advocated also the use of an eye glass such as watch-makers use, contending that it not aided in securing exactness, but materially conserved the sight. He insisted on neatness and cleanliness in the dental office and in all its apartments, wearing, while at work, a white linen coat fresh from the laundry every day. While we cannot point to any particular invention or innovation and call it his, we may truly say that he had much to do with inaugurating a new order of things in dental practice. He had the willingness and to a remarkable degree the ability to instruct. There was a charm in his manner that placed the onlooker entirely at ease, that chained his attention as the teacher explained and demonstrated each step of an operation, and the final result was so pronounced in its completeness as to encourage an attempt to follow the methods by which it was produced. Moreover, his career as a teacher, although short, began when systematic dental education had just demonstrated its use-

fulness, and the profession was beginning to appreciate its advantages. The profession was anxious to learn the means and the methods which had given Dr. Townsend his position in the community and had made him a master among his compeers, and these, so freely given, were adopted and practiced far and wide."

Dr. Townsend has been credited with originating the formula for a dental alloy, long known as "Townsend's Amalgam," four parts pure silver and five parts pure tin. This is not correct. Dr. Townsend never claimed it as his own, but always stated that it was communicated to him by Dr. William M. Hunter, of Cincinnati, Ohio. In an article entitled "On the Use of Amalgam for Filling Teeth," in the *"Dental News Letter"* (Vol. IX, October, 1855, page 35), as a postscript, he says: "Since writing the above I have been made aware of the necessity of giving some directions now, as to the proper preparation of the amalgam for insertion, as I find some have been experimenting without being aware of the requirements to ensure success. Receipt—4 parts of pure silver, 5 parts pure tin. The silver to be melted in a crucible, and when partly cooled the melted tin slowly added, carefully shaking the crucible while pouring in the tin: a black flux is then thrown in, and the whole is reheated, then poured into the ingot. I am indebted for this method of preparation to Dr. William M. Hunter, of Cincinnati." This settles the question beyond cavil that it did not originate with him. Dr. Townsend's endorsement of this alloy was guardedly made. He was surprised at the interest it excited, and not pleased, as he was an "all gold" advocate. Had he lived, there is no doubt but that he would have strenuously objected to his name being associated with it. His last word on this question is emphatic (*"Dental News Letter,"* Vol. IX, April, 1858, page 169). He says: "I now wish to say to the profession that I have entirely abandoned it, and shall never use it again in my practice. * * * I have come to this broad conclusion, that a tooth so infirm as to need a soft filling would be best removed, for the health of the mouth and the health of the patient: and that my practice hereafter will be to advise their removal, and then leave the responsibility with the patient." This was his last communication to the dental profession.

Dr. Townsend received the honorary degree of Doctor of Medicine from the Jefferson Medical College of Philadelphia; also the honorary degree of Doctor of Dental Surgery from the Baltimore College of Dental Surgery, 1846.

Dr. Townsend was married, in 1826, to Miss Elizabeth W. Haydock. They had no children. Dr. Townsend stood high with the best men of the profes-

sion. His closest friends were Chapin A. Harris, Horace H. Hayden and Robert Arthur, all of whom highly respected his ability and standing.

In the winter of 1856-7 he was stricken by an affection of the stomach, followed by an attack of typhoid fever, from which he only partially recovered. His earnestness in the cause of dental progress led him to attend the American Dental Convention (a creation of his own, for to him alone belongs all the honor of its origin) in Boston, August, 1857. In March, 1858, accompanied by his wife, he went to Georgia and Florida, hoping to more quickly regain his health and strength by avoiding inclement weather at home. In this he was disappointed.

In June of the same year he went to London, thinking the sea voyage would benefit him. After a short stay in England, during which time he received the kindest attention from the profession there, finding his health no better, he returned, reaching home in August. His strength rapidly declined and he died October 13, 1858, aged fifty-four years, in the prime of his manhood, highly respected and beloved, both for his professional ability and social qualities. He was buried in Woodland Cemetery, Philadelphia.

His professional life covered a quarter of a century of the most eventful period in the history of dentistry. His character, his labors, and his devotion to his calling, lifted many a cloud from his associates and successors, and pointed out a pathway that to-day is crowded with men who, with knowledge and ability, are ameliorating ills that beset half the race, and are affording comfort and security to as large a portion.

Of him we may truly say:

"His life was gentle; and the elements
So mixed in him that nature might stand up
And say to all the world,—This was a man."

The facts contained in this sketch were obtained from:

"The Dental News Letter," Vol. XII., page 103, 1859.

"The International Dental Journal," Vol. XIX., p. 779, Dec., 1898.

"The New York Dental Journal," Vol. II., p. 67, April, 1859.

Dr. Mahlon Kirk, Sandy Springs, Maryland, former student and brother-in-law, and Dr. Henry Townsend, Philadelphia, cousin of the subject of this sketch.

AMOS WESTCOTT, B. S., C. E., M. D., D. D. S.

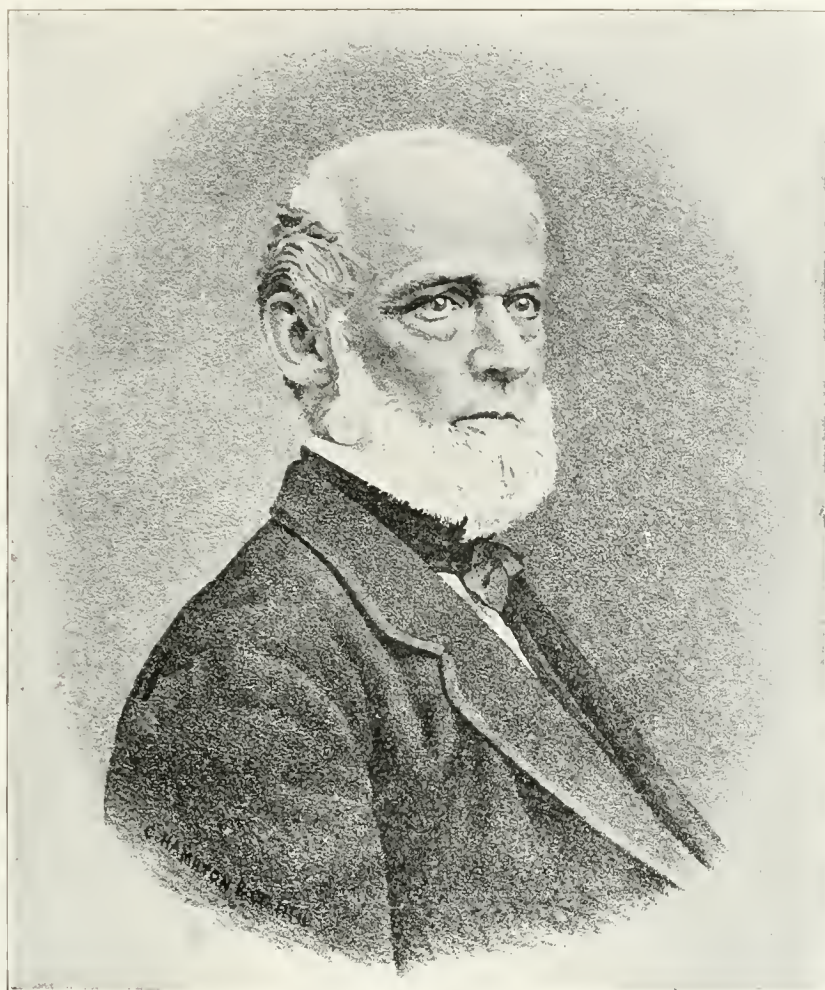
PIONEER TEACHER, EDITOR, AUTHOR, CHEMIST, INVENTOR.

Amos Westcott was born at Newport, Herkimer Co., New York, April 28, 1815. He was the youngest of seven sons of Gorton Westcott, a farmer who lived near that village. His early education was that of the common school, but as a boy he manifested a desire to obtain an education beyond the ability of his parents to provide. They yielded to his wish and allowed him to educate himself, which he did by teaching district school in the winter, beginning at the age of seventeen, at Delphi, Onondaga Co., N. Y., and attending the academy at Truxton, N. Y., during the summer months, during which time mathematics and astronomy were his favorite studies. In the winter of 1834 he entered Rensselaer Polytechnic Institute at Troy, N. Y., where he manifested interest in botany and mineralogy, and received the degree of Bachelor of Natural Science, and in 1835 he graduated as a civil engineer from the same institution. His fondness for minerals continued through life, and he made a large collection of rare specimens.

From 1836-38 he was a teacher in the famous Pompey Academy, giving especial attention to lectures on chemistry. At the same time he pursued the study of medicine with Dr. Jehiel Stearns, immediately thereafter attending a course of lectures at the Medical College at Geneva, N. Y., and at the Albany Medical College, where he was tutored by the celebrated Dr. Aden S. March, graduating from that institution in medicine and surgery in the spring of 1840.

In 1841 he located at Syracuse, N. Y., and immediately began the practice of medicine and the study and practice of dentistry. He soon became so deeply interested in dentistry that he abandoned the practice of medicine, and devoted all his energies to the new profession, which had little standing at that time in the scientific world. He assisted in its elevation for a third of a century.

From 1846-49 he occupied the chair of professor of operative and prosthetic dentistry in the Baltimore College of Dental Surgery. In March, 1852, he obtained a charter and founded the New York College of Dental Surgery



W. Westcott M.D.

at Syracuse, the third dental college in the world, of which he was dean and professor of theory and practice of dental surgery and dental technology. Owing to lack of support this college closed operation in 1855 after being destroyed by fire. Dr. Westcott instructed many young men in dentistry, and was very enthusiastic in dental society work, doing much to promote interest in the various organizations to which he belonged. He was an early member of the American Society of Dental Surgeons, the American Dental Convention and the American Dental Association. September 6, 1859, the New York State Dental Association was organized in New York City with Dr. Westcott the first president. This society was short lived and June 30, 1868, he and Dr. B. T. Whitney were the most active members in organizing the Dental Society of the State of New York, and he was elected its first president. He was also a member of the Fifth District Dental Society of New York, of the Onondaga Medical Society and the Onondaga Historical Association. From 1844 to 1850 he was associate editor with Dr. Chapin A. Harris, of the *"American Journal of Dental Science."*

Dr. Westcott was a vigorous and interesting writer and was author of numerous valuable contributions to dental science, most of his productions appearing in the journal of which he was editor. His essays were on "Amalgam Fillings;" "Arsenic for Destroying Nerves;" "Sulphuric Ether;" "File Carriers;" "Forceps, Extraction Key;" "Gold Foil;" "Irregularity of the Teeth;" "Exposed Nerves;" "Operative Dentistry;" "Teeth Destroyed by Saleratus;" "Transplantation of Teeth." He was author of a "Dissertation on Dental Caries" in which he proved, by experiment, that caries of the teeth is produced by external chemical agents. This paper and several appliances of his invention gave him reputation both at home and abroad. He was continually writing, experimenting, testing and applying the minutiae of his science. He was bitterly opposed to the use of amalgam from its introduction, but of later years seceded from his former belief and admitted of its place in dentistry. Westcott was one of the first to discover and utilize the principle of cohesion of gold at common temperature. It is said he ordered a book of gold, the paper being removed to save the postage and when it arrived the sheets were welded together. Westcott vigorously contested with Dr. Robert Arthur the discovery of the welding properties of gold. Dr. James Leslie also claimed the credit as did W. H. Dwinelle—but as Arthur immediately made his discovery known and the others did not until after Arthur had repeatedly demonstrated it, the credit belongs to Arthur.

Although Dr. Westcott gave so much time and study to dentistry, he was

possessed of a great store of general information on a variety of subjects. He found time and disposition to take active part in the material interests of the city in which he resided, particularly in the effort to procure for it an abundant supply of pure water.

He entered the political arena first as an alderman, and in acknowledgment of his public spirit he was elected republican mayor of Syracuse, in 1860, an office he filled with honor and satisfaction to his fellow townsmen.

He invented many instruments and introduced to the dental profession many methods and processes of merit. He also was the inventor of agricultural and other implements of practical value. Among Dr. Westcott's inventions which he patented were: A rotary churn which brought the butter in one minute; a door spring; escutcheon for preventing a key being turned from outside; door bolt which turned and locked; the Westcott jack screws for regulating teeth as illustrated in Vol. I, II and III '*Dental Cosmos*;' and a file carrier. It is claimed that Westcott and his student, Dr. Edwin J. Dunning, first originated the use of plaster of Paris for impressions of the mouth in 1844. This statement is very doubtful, as Dr. William H. Dwinelle claimed priority in its use.

Dr. Westcott was twice married; his first wife was Miss Cora Babcock. Three children were born to them, namely, Watts, Katherine and Edward Noyes Westcott, the author of "David Harum." His second wife was Miss Harriet Nash, the mother of two children, Margaret Westcott Muzzey and Rev. Frank Nash Westcott.

In 1871 Dr. Westcott's health failed from overwork and he went abroad to recuperate his exhausted energies. While in Europe he was received with respect by the most distinguished dentists of London, Paris, Berlin and other cities he visited, who recognized his high professional standing and his contributions to science. His effort to regain his health was unsuccessful, and he returned home disheartened, and gradually grew weaker. For three years previous to his death his mind weakened and on July 6, 1873, in a fit of temporary aberration he ended his life, with a pistol shot, aged fifty-eight years. It was his motive to do everything he attempted with persistency and a love for his work. He gave liberally his knowledge to his professional brothers. In argument he was unsparing in logic, and denounced with vigor the things he disapproved. He drove and pushed, rather than drew and won. He possessed an aggressive nature and great energy, which gave him success and also made him enemies. He was genial socially, but like all strong natures needed elbow room, and was not sufficiently yielding to be an universal favorite.

It has been said of him :

"He was honest in opinion, wise in counsel and always smoother in deed than he sometimes was in word."

As a pioneer, a superior operator, a skilled mechanic, a practical scientist, an earnest investigator, a courageous and persuasive writer, an able organizer and educator, his name will ever stand in bold relief.

The facts contained in this sketch were obtained from:

Dr. Stewart B. Palmer, Syracuse, N. Y. Transactions of the Dental Society of the State of New York, 1873-74, p. 86.

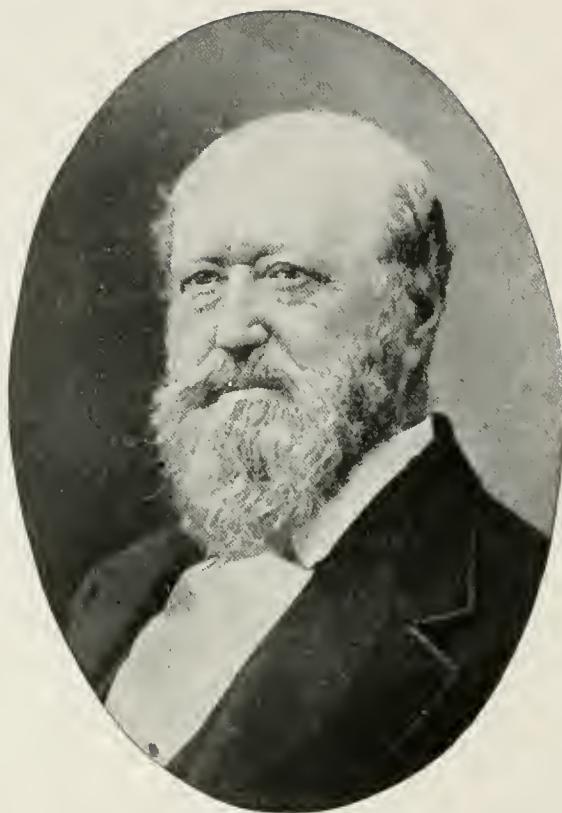
"Missouri Dental Journal," 1873, p. 388.

JAMES TAYLOR, M. D., D. D. S.

PIONEER, PRACTITIONER, TEACHER, JOURNALIST AND DENTAL SOCIETY AND
DENTAL COLLEGE ORGANIZER.

James Taylor, M. D., D. D. S., was born in 1809, at Cedar Grove farm, on Paint Creek, near Bainbridge, Ross County, Ohio. The town of Bainbridge was named for Commodore Bainbridge, of the United States navy, by the grandfather of our subject, who was a near relative of the Commodore.

Joseph Taylor, the father of James Taylor, was born in Monmouth County, New Jersey, where the Taylor family, of English extraction, settled more than two hundred and fifty years ago. His mother, whose maiden name was Jane Irwin, was born in Virginia, of Scotch-Irish stock, and married Joseph Taylor in 1797. In 1801 the young couple, with the husband's father, William Taylor, moved to Ross County, being among the first settlers of the country. Here James Taylor was reared, contending with great obstacles in securing an education, by reason of the limited resources of the country; for at this time wheat sold for thirty cents and corn for ten cents per bushel, if they could be sold at all. But the father, being magistrate and school commissioner, employed New England teachers, often graduates of colleges, who made his house their home. Thus a good English education was secured to the children, while the presence for so long a time of educated men in the family fostered a taste for reading and study. At the age of seventeen James had chosen medicine as his future profession, and, advised by an old family physician, he began the study of Latin and anatomy at the same time. In 1826 Dr. John Harris settled in Bainbridge, having an excellent reputation as a physician, and among the students that sought his instructions, the subject of this sketch was soon numbered. After a year of close application to study on the part of his scholar, Dr. Harris turned his own special attention toward the study and practice of dentistry. The works of Koecker, Bell, Fitch and Hunter were procured and eagerly read by both Dr. Harris and his student. After a time the latter was sent to Cincinnati, to purchase the requisite instruments and materials for the work. The trip was made on horse-back, and it required several days to find the files, scalers, forceps (at that time very rare), elevators,



Pres. Taylor

turn-keys, hippopotamus tusks, gold and tin foil, etc. A set of instruments worth fifty dollars was not then to be found in the city. His horse became lame, and to occupy the time of his delay the young dentist began to practice, with such success that he soon made enough money to pay for his new instruments and the whole expense of his trip. Some of these first patients in after years, when he had settled in Cincinnati, gave him their practice. The teacher and pupil, being now in partnership, visited various neighboring towns, among others Greenfield, twelve miles distant, where Dr. C. A. Harris, a brother of the former, was then practicing medicine. Chapin A. Harris was induced to devote himself also to dental science, and with his industry, integrity and professional pride proved a great acquisition to the profession. After two years Dr. John Harris moved permanently to Chillicothe, and Dr. Taylor went to Hillsboro, placing himself under the tuition of Dr. Kirby, a noted and eminent physician. His dental practice, however, from which he supported himself meanwhile, so interfered with his medical studies that he did not enter the medical school of Transylvania University, Lexington, Kentucky, until the autumn of 1830. After having passed through the difficult course of study in this school, from which he subsequently received the degree of M. D., he returned to Ohio, and was examined and licensed to practice by a board of physicians appointed as censors by the legislature to examine those who desired to practice medicine. The Baltimore College of Dental Surgery in 1843 conferred the honorary degree of Doctor of Dental Surgery on him. His first office was opened in Bainbridge. His brother Joseph, having studied dentistry with him previously, had spent the winter of 1830 profitably in Vicksburg, Miss., and induced James to return to that place with him the subsequent winter. The latter settled at Port Gibson and in Natchez. Thus for several years he spent his winters in the South and his summers in the North. In 1834 Dr. Taylor decided to give up the practice of medicine, although he was very successful therein, and devote himself wholly to dentistry. He ever deemed his medical career invaluable to his success in the dental profession. Those days, both cities and towns were small, and could not afford a permanent location to any professional man. Indeed, ten years later, though the number of dentists had increased four-fold, yet very few had attained to eminence. After assuming the practice of dentistry alone, Dr. Taylor continued his winter visits south until, in 1838, he had accumulated about \$6,000, which he invested in the dry goods business in Bainbridge, placing his youngest brother, Irwin, in charge of the store. His eyes were threatening to fail him—he feared that he would be compelled to relinquish his profession; and, sell-

ing out his store, he moved with his brother Irwin to Crawfordsville, Ind., taking with him a stock of goods. But here he soon found himself again in full practice; and it was here he resided when the American Society of Dental Surgeons was organized, 1839, of which he was a charter member. He visited Lafayette, Covington and neighboring towns, and in 1841, his merchandise business not proving successful, Dr. Taylor closed up his business and visited his old field of labor in the south, while his brother went to Maysville, Kentucky, to study dentistry with another brother, Joseph, who had several years before settled there. Still longing for a permanent settlement, however, in 1842, Dr. James Taylor bought of Doctor Rostaing, of Cincinnati (who moved to Europe, residing at Dresden, where he was dentist to the family of the King of Prussia, etc.), his house, office, instruments, fixtures, etc., and enlisted in his chosen profession in this young city, then numbering about 60,000 inhabitants. Meanwhile, a fourth brother, Edward, who had also studied medicine and then dentistry, and who had pursued the same career of vibration between the North and South, and was settled in a successful practice in Louisville, Kentucky, joined his brother in Cincinnati, and in a few years they had built up a most flourishing and lucrative practice, with a widespread reputation. The health of Edward, however, failing after some years, Dr. Joseph Taylor, of Maysville, Ky., took his place, while the former retired to Cleveland and engaged in horticultural pursuits until his death in 1867. The two remaining brothers extended their practice among the best families of the community, and became well known in the profession. Thus these three brothers (the younger, a fourth practitioner, having died early) laid a broad foundation for the rising profession of dentistry, and by their enthusiasm and labors helped to give it that high professional character and standing which it attained not only in the West, but throughout the whole world. While thus engaged in Cincinnati, Dr. James Taylor was invited to a chair in the Baltimore College of Dental Surgery, which had been organized by his boyhood friend, Prof. C. H. Harris; but, feeling that a college of dental surgery should be established in the West, he declined the flattering offer. At this time it was a serious sacrifice to science to become a professor in a dental college. In 1844 Dr. Taylor first advocated the necessity of a dental school for Cincinnati. After discussion of the subject with Drs. Jesse W. Cook, John Allen, and M. Rogers, they applied to the legislature for a charter. After some opposition the charter was obtained, and in 1845 the college was organized; Dr. Taylor was elected dean and assigned to the chair of Practical Dentistry and Pharmacy. This Ohio College of Dental Surgery was the second of the kind in the world's

history. After three years a new assignment of chairs was made, and that of the Principles and Practice of Dental Surgery was allotted to Dr. Taylor, which he occupied for eighteen years, when he voluntarily retired with the honor of Emeritus Professor. He continued every session to deliver a few lectures to the classes until his death. The college was owned by the Association of the Ohio College of Dental Surgery, of which Dr. Taylor was several times president. Dr. Taylor was a large stockholder and the President of the Board of Trustees. He was elected President of the American Dental Convention which met in Boston, August 6, 1856. Dr. Taylor and his brothers were also among the originators and leading members of the Mississippi Valley Association of Dental Surgeons, which was the oldest and most efficient society in the West, organized in Cincinnati in 1845. He was president of this society 1849-50. The publication of the "*Dental Register of the West*" was begun in 1847, and by this society, as its organ, Dr. Taylor was one of the publishing committee and resident editor in Cincinnati, where it was published. The editorial duties largely devolved upon him, so that after three years the magazine was placed entirely in his hands, he assuming all its expenses. For nine years he continued to edit and publish this journal, when it became self-supporting and took high rank among the leading organs of the profession. During this time his literary contributions were very numerous, embracing well-nigh every topic relating to dental practice, and in many cases being original and thorough discussions of subjects which had been but little discussed previously. Among them were essays on Aluminum, Prevention of Decay by Filling, Extraction of Teeth, Materials for Filling, Filling Teeth, Treatment of Nerves, Second Dentition, Treatment of Dental Caries, Dental Hygiene, Springing Plates, Block or Cylinder Filling, Effects of Calomel on the Teeth, Method of Directing Second Dentition, Alveolar Abscess, and the Life and Character of Chapin A. Harris, M. D., D. D. S. The value of these articles has been widely acknowledged. Were these, with his contributions to the "*American Journal of Dental Science*," his numerous addresses to the graduating classes and his carefully prepared lectures, to be published together, they would make several large volumes of great interest and practical value. Dr. Taylor was a man of pronounced yet liberal views; he was one who refused to sign "the amalgam pledge" of the American Society of Dental Surgeons, 1847.

In 1838 Dr. Taylor married Miss R. Maria Applegate, of Monongahela City, Penn., which happy union was severed by her death in 1858. He was subsequently married to Miss Belle P. McMaster, of Cincinnati, a talented

and accomplished lady, who died in 1873. On May 24, 1876, he was again married to Miss Susan A. Rogers, of Sandy Hill, N. Y., who survives him at this writing (1908). Dr. Taylor remained in practice in Cincinnati, having as his partner his nephew, Dr. James I. Taylor, who succeeded him. He resided on the Kentucky side of the Ohio river, on a beautiful suburban farm, his spacious residence overlooking the city. For more than twenty-five years he was a ruling elder of the Second Presbyterian Church where he was highly esteemed and honored by the congregation, as well as by the entire community. He died of angina pectoris, June 12th, 1881, and was buried in Spring Grove Cemetery, Cincinnati.

Dr. Taylor possessed the qualities of the Christian gentleman: affable, genial and pleasant in his intercourse with all, and especially so with his professional brethren.

He entered the profession while our science was yet in its swaddling clothes and thus became one of its pioneers and fathers. He lived to see it grow from infancy to a full and strong manhood, with the gratification of knowing that he did much for its interest.

It is remarkable to note that two boys of humble parentage, as were Chapin A. Harris and Taylor, residents of an obscure inland town, should begin their careers under the same auspices and each develop his talents along the same line and each leave a brilliant record as dental educator, journalist, society worker, organizer and practitioner, in a way to bring credit and fame as long as the pages of dental history are read.

The facts contained here were obtained from the volumes of:
"Dental Register of the West."

The Biographical Encyclopedia of Ohio.

Dr. Taylor's wife, Mrs. Susan A. R. Taylor, Sandy Hill, N. Y.

Dr. Jonathan Taft, Ann Arbor, Mich, and

Dr. H. A. Smith, Cincinnati.

NATHAN COOLEY KEEP, M. D., D. M. D.

PIONEER PORCELAIN EXPERT—FOUNDER AND FIRST DEAN OF THE HARVARD DENTAL SCHOOL AND HARVARD DENTAL MUSEUM, ORGANIZER AND FIRST PRESIDENT OF THE MASSACHUSETTS DENTAL SOCIETY.

Nathan Cooley Keep, oldest son of Samuel Keep and Anne Bliss, was born in Longmeadow, Mass., December 23, 1800.

Skill in the use of tools which had been apparent from childhood and which he inherited from his father, seemed to have destined him for some mechanical pursuit; by his own inclination he selected the trade of a jeweler. After obtaining a limited education at the village school, at the age of fifteen, he left his home for Newark, N. J., where he was apprenticed to John Taylor, a manufacturing jeweler.

He had nearly completed the term of his indenture, when a general stagnation in the jewelry business caused his employer to dismiss his apprentices, and young Keep, now master of his trade, returned to his native village. With a strong determination to seek his livelihood in a large city and a desire to study dentistry, he went to Boston in 1821, where he combated with many obstacles before he gained a footing in his profession. The practical training for his professional work was obtained from Dr. John Randall, of Boston, who, as was common in those days, united some practice of dentistry with the general practice of medicine. Dr. Keep could have had no better schooling than the years of apprenticeship in Newark, where he gained a manual dexterity and a practical experience in working with metals. He was obliged, to a great extent, to make his own operating instruments and to discover for himself the best way of performing many of the delicate and difficult operations that are continually presenting themselves to the practitioner. Dr. Keep early recognized the truth that the highest eminence in the specialty of dentistry involved a general acquaintance with medical science. Under this conviction he attended without interrupting his active practice, the regular course of lectures at the Medical School of Harvard College, from which he received the degree of Doctor of Medicine in 1827.

After completing his medical course, he devoted his entire time to dentistry.



W. C. Kuyf

At that date there were fewer sources of information than at present, but Dr. Keep thought for himself and ventured boldly into original research and developed many new methods and ideas.

He was one of the first few original manufacturers of porcelain teeth in America and carried the art to a high degree of perfection for that day. He spent many evenings in his cellar testing in a baking furnace new enamels and bodies he had compounded. In a competitive exposition he received the first premium for the excellence of his imitation of the natural teeth and was considered unequaled in all that pertained to the niceties of their manufacture. His signal ability in this direction made him master of his art; he had the artist's eye and the delicate touch so rare in any profession.

There were several prominent men practicing in Boston at this time, among them Josiah Foster Flagg, son of Josiah, and his younger brother, J. F. B. Flagg, Daniel Harwood, Joshua and E. G. Tucker, Benjamin and W. W. Codman, and Drs. Appleton and Barnes, with others.

"American Journal of Dental Science" (Vol. IV, July, 1854, page 594) says: "Dr. J. F. Flagg and Dr. Keep were experimenting in making porcelain teeth in 1833. The story is that they met with a little dapper Frenchman, a fine dancer and an entertaining conversationalist, who professed to have the secret of making such porcelain and offered to teach them for one thousand dollars. They made the bargain and got some information out of him, but soon concluded that he was a better dancer and talker than tooth-maker, that he did not know much about practical details, and so dropped him, and went it alone, working in each other's laboratories so faithfully that they succeeded in setting their workshop on fire. J. F. B. Flagg assisted in these experiments."

During the long period of his active practice, Dr. Keep's time and thoughts were never selfishly absorbed in his own affairs. He always labored for the good of his profession and the promotion of mutual confidence among his confreres. He was recognized for his broad, liberal mindedness and generous character. This is shown in an address delivered by him as president of the Massachusetts Dental Society in 1865 on "The Aims and Duties of the Dental Profession." He said:

"We owe it to ourselves to make ours a liberal profession. Without enumerating all that such a profession comprises, we may safely say that it requires those of its members who have, through their own efforts, or the teachings of those who have preceded them, made improvements in dental science, to perpetuate these improvements for the benefit of succeeding generations, and

under no circumstances whatever to desire or even to consent that their discoveries shall live and die with themselves.

"The liberal charter which has been granted us by the commonwealth, and which we have this day accepted, gives us a legal existence as an institution for raising the standard of professional education, and enables us to cultivate harmony and good fellowship among ourselves, and, if we are faithful to our trust, will secure to us a position among the educational and beneficent institutions of America.

"We need the knowledge of every science and of every art. How often have we been obliged to extemporize an invention when an instrument was wanted that could not be purchased. The early education of the hand to execute that which the mind conceives, has prepared the way for the eminent usefulness and honorable position of many, very many, members of the profession. With increased facilities for education, how bright a future would open before the thoroughly capable dentist! But he must be a true man. He must possess more knowledge than he expects to use in the discharge of his immediate duties."

On the same occasion he gave utterance to the long cherished desire of his heart, the establishment of a "College for Training Dentists." He says:

"My own predilections would favor a thorough and united dental and medical education. I should hope in such a case that the degree of M. D. would be a lawful and merited appendage to the names of those young men who enter our specialty. If this, however, is not yet attainable, it may not be entirely out of place to inquire whether Harvard University might not appoint professors of dentistry, and confer upon proper candidates the degree of Doctor of Dental Surgery. We are admonished, also, that the time has come for a chair of dentistry in our hospitals."

The society favored these recommendations and appointed Drs. N. C. Keep, E. C. Rolfe and L. D. Shepard, who is the only living survivor of the organizers of the Harvard Dental School, a committee to bring about the organization of the school.

It is conceded that it was largely through Dr. Keep's effort that these hopes were at length realized and that he was foremost in advocating the formation of the Harvard Dental School as the best means of permanently securing a higher professional standard.

In 1868, three years after the delivery of the above address, there appeared "The first annual announcement of the Dental School of Harvard University, established to meet a want long felt by the dental profession of New England."

"Its aim" was declared to be "to raise the standard of dental education, by giving thorough instruction in all branches of science and art required by the dental practitioners." A large force of distinguished professors was announced, with Dr. Keep as the first dean of the faculty from 1867 to 1872, and professor of mechanical dentistry from 1867 to 1871. An infirmary was established in connection with the Massachusetts' General Hospital, to remain open throughout the year, offering the students great facilities for acquiring practical knowledge and dexterity. During the first year over one thousand patients were treated. In 1870 Dr. Keep received from the Harvard College the honorary degree of Doctor of Dental Medicine.

An incident worth repetition occurred during the first course of instruction. Dr. L. D. Shepard says:

"A young colored man, whose home was in Washington, had written the dean of a dental college and had been accepted, by the latter, as a student, but upon his arrival and presenting himself for matriculation, he was informed that he could not be received, since it would jeopardize the success of the college to admit one of his race as a student. He also applied to the dean of another college and met a like repulse. He came to Boston, called upon Dr. Keep, and applied for admission. The faculty decided that the Dental School of Harvard University would know no distinction of nativity or color and among the six who received the first dental doctorate degree from that institution was Robert Tanner Freeman, the first colored man to receive dental collegiate honors."

Dr. Keep also urged the establishment of a "Dental Museum," in which rare and curious specimens, casts, models, records of cases and other material, gathered in private cabinets and liable in a few years to be scattered and lost, shall be preserved and made accessible to all who wish to study them, and thus become a substantial contribution to public science, and lend important aid to the advancement of dentistry." After persistent agitation on this subject, the Harvard Dental Museum was founded.

The only practical literary contribution of Dr. Keep on record is a paper, "Aluminum as a Base for Artificial Teeth," read before the Massachusetts' Dental Society, January 8, 1866, and printed in the "Boston Medical and Surgical Journal" (Vol. LXXIV, page 53, 1866).

Dr. Keep was a charter member of the American Society of Dental Surgeons, and one of its first executive committee. When a movement was inaugurated to organize the Massachusetts Dental Society, Dr. Keep, alone of the older practitioners, came in with the younger men and assisted them in its

organization. He was the first member elected April 4, 1864, at the society's organization. He soon became its leader and its first president, elected May 16, 1864, at the first annual meeting and re-elected president March 18, 1865, serving until 1866.

Dr. Keep was much interested in the discovery of ether, and gave ether the first time it was ever used for a case of child-birth, administering it to Mrs. Henry W. Longfellow, he being considered an expert in its use.

Dr. Keep was the recipient of a large number of unsolicited testimonials which came to him from the grateful subjects of his skill, from governors and senators, learned professors and preachers, and from the humble and the poor as well, and they were all accepted by him as they were sent, in hearty good faith, and with unaffected delight. His practice was with the best class of citizens, and among others was Charles Sumner of abolition fame, who was also a friend.

Any sketch of Dr. Keep would be incomplete without some allusion to the celebrated trial of Prof. John W. Webster for the murder of Dr. Parkman in 1850, in which trial he was a leading witness. On his single testimony the fate of the unhappy man was seen by all to depend. One of the eminent counsel remarked, in reference to Dr. Keep: "Not for the world would I stand in his place and take the responsibility resting on him."

No one knew the importance of his testimony better than Dr. Keep himself, or could feel it more keenly. His knowledge of the case was positive and definite, and his duty was plain. With all the clearness characteristic of his accurate mind, he gave his testimony with orderly precision, coming at length to the culminating point when, under an awful sense of his responsibility, he pronounced the words, which he well knew, must consign to an ignominious death an eminent member of a kindred profession, who happened, moreover, to be among the first to speak a cordial word to him when he came a stranger to Boston, and with whom he had always been on friendly terms. It is not surprising that, overcome by his emotions, he burst into tears, unable to proceed, while the court and all present were visibly moved. It was a memorable scene. Mr. Solier, counsel for Dr. Webster, asked Dr. Keep on the witness stand, "What was your first thought when you saw those teeth?" The witness, visibly affected, answered: "That I should never see my old friend Parkman again." A thrill ran through the court room, no other questions were asked—it was enough. If the eminent justice who presided at the trial was scarcely able to command his feelings when pronouncing the sentence of death upon the wretched culprit, how sorely must the sensitive heart of Dr. Keep have been wrung, when at the stern call of justice he was thus

compelled to utter the testimony which constituted the warrant and ground for that dread sentence of the law!

Dr. Keep was married April 15, 1830, to Miss Susan Prentice Haskell (who died 1868). To them were born, Susan Haskell, who married Calvin Gates Page, M. D.; Samuel Hamilton, M. D., who had chosen his father's profession and was in active and successful practice as his partner at the time of his death in 1861; John Haskell, who married Isabella H. Dickinson, and Anne Bliss, who married George Glover Crocker.

Dr. Keep came from a religious family, several of whom have been clergymen. In early life he united with the Congregational Church in Newark. In Boston he was for many years an esteemed member of the Bowdoin Street Church; afterward of the Essex Street Church and at the time of his death he was connected with the Central Congregational Church. His friend, Dr. Augustus A. Hayes, says of him:

"In the daily practice of his profession, which is eminently that of alleviating pain and distress, Dr. Keep carried a sensitive and extremely kind disposition, which won the love of his patients, while his skill compelled their admiration and respect. His tender interest in children made him a favorite with them, and often enabled him to dispel their natural timidity and fear. His kindness of disposition was manifested in so many directions that no one could approach him without being impressed by his manner. He never became hardened to the infliction of pain. In some cases he was unable to operate after a time, so intense was his sympathy with his patients. In every way he sought to alleviate pain. He was always ready as a counselor in giving advice, and in helping to render rough places smooth. His gratuitous operations were very numerous. He was a true philanthropist." Dr. Keep was an invalid for several years before his death and lived to reach the age of 75 years.

Having lived to relieve human suffering and to promote physical health; having largely aided in building up a liberal profession and securing it to the world; having gained the confidence and enjoyed the society of large numbers of cultivated people: at peace with God and his fellowmen, he closed his long and useful life on March 11, 1875, at Boston, loved and respected by both his profession and the public.

The facts contained in this sketch were obtained from:

The New England Historical and Genealogical Register for April, 1878.

Report of the Twentieth Anniversary of the Harvard Dental School, March 11, 1889, page 8.

"Boston Daily Advertiser," March 12, 1875.

Dr. Calvin Gates Page, Boston, grandson of the subject of this sketch and Dr. Wm. H. Trueman, Philadelphia.

LEWIS ROPER, M. D.

ART COLLECTOR AND PIONEER DENTIST OF PHILADELPHIA.

Lewis Roper was born in Philadelphia; he was the son of a sea captain, who was lost at sea when he was a child. At eight or nine years of age he was placed with Mr. John Sillers, of Upper Derby, Pa., a farmer, with whom he lived until he was apprenticed to Mr. Ferris Price, a house carpenter in Philadelphia, where he staid until he was 21, at which time he commenced business for himself. Before, however, he had finished his apprenticeship he married the daughter of Mr. Jonathan Shoemaker, which marriage in one year terminated with the death of his wife. Without the responsibility of a family, and free to follow the bent of his inclinations, he left Philadelphia and studied his profession in New York, with a dentist then residing there by the name of Dr. Chevalier. After obtaining all the knowledge he could from him, he went south and practiced some four or five years.

Dr. Roper's first success in practice was accidental, and rose from his acquaintance with a family with whom he was a fellow boat passenger on his leaving his preceptor in New York. Learning that he was a dentist they requested him to go to their place at Charlottesville, Va. Being a family of influence, their recommendation at once gave him a fair beginning in professional life, and he gained skill as he went from place to place as an itinerant.

He returned to Philadelphia in 1829 or 1830 and with the avails of his professional success he was enabled to procure a good house, which he furnished handsomely, showing much taste in its internal arrangements; he shortly afterwards married, in 1831, Miss Glover, the daughter of Captain William Glover, of Philadelphia, a young lady of education, refinement and of great personal worth and domestic virtues.

After a few years of prosperity, Dr. Roper, in 1840, was called to mourn the death of this excellent woman, leaving only one daughter.

He soon gained a position and acquired considerable reputation as a dentist, and at the death of Dr. Edward Hudson, in 1833, he took the dwelling previously occupied by that worthy and highly distinguished dentist. In the

meantime he received the M. D. degree from the University of Pennsylvania, the first and oldest medical college in Philadelphia.

Dr. Roper had by this time obtained a large practice and saved a handsome sum of money, but was encouraged to place it in the hands of some of his friends who were dealers in stocks, for which they made him large purchases. At one time the stocks increased upon his hands which added greatly to the sum already invested. This encouraged him to go on until a large portion of his hard earnings were by these stock operations completely swept away. He moved into a less expensive house, in a less desirable neighborhood to recoup his lost fortunes. Dr. Roper, in 1842, married a third time, a daughter of Thomas Hillen, Esq., one of the most respectable citizens of Baltimore, a lady of great personal worth and attraction. Again fortune smiled upon him and he purchased a splendid house in Philadelphia, furnished it with great taste and elegance, and lived in a style corresponding with the establishment. In a book privately published about 1845, giving the financial standing of many prominent Philadelphians, the following appears, "Roper Dr. L., worth \$75,000. He is an excellent citizen." Dr. Roper had a great love for paintings and works of art. His collection would compare well with the collection of other gentlemen of acknowledged taste and liberality in that way. He had the largest collection of valuable, rare coins and medals that was ever collected in any private cabinet, and his collection of autographs would compare with the largest in the country at the time, all of which were arranged with great care and labor. In the midst of all these quiet and social comforts and advantages the California gold excitement broke out, and with his enthusiastic spirit and ardent temperament he entered largely into the purchase of property consisting of houses and household conveniences, for that market. After shipping his merchandise in Philadelphia, he took passage at New York in September, 1849, by steamer, full of hope and expectation, to be realized in the newly discovered world of gold. On his arrival there, he made purchase of ground, sold some of his houses, and erected others, and at one time seemed to have a large fortune, but a change came over the city of San Francisco, by fires and other causes, and a vessel containing several houses of his not arriving, Dr. Roper lost the whole of his large investments, and with broken hopes and humbled ambition, took passage on the steamer "*Panama*," for his native land, and died of cholera on the day the steamer arrived at Panama.

A fellow passenger, Lieutenant Hoskins, who attended him most faithfully, said that after the cholera broke out Dr. Roper was continuously with

the sick and dying and that he really fell a victim to his devotion to their necessities.

August 21, 1850, the morning he was taken ill, he had been administering to their wants and being exhausted, he went to the upper deck about ten o'clock and laid down to rest upon a settee, where he was immediately seized, and so sudden and violent was the attack that he soon became insensible, and at seven o'clock that same evening, died. As soon as preparations could be made, the passengers assembled on the side of the vessel's deck and performed the last sad duty to the lifeless body by lowering it gently into the water with no less coffin and winding sheet than the boundless billow, and no less grave than the vast and almost shoreless Pacific whose rolling waves murmured the mournful requiem as the remains of Lewis Roper sank to their final resting place.

Dr. Roper was known through life as being a highly honorable, quiet and amiable man; he took great interest in whatever tended to advance the science of dental surgery, and his exemplary and moral life gave character to his professional standing. He was one of the original formers of the American Society of Dental Surgeons, August 18, 1840, and one of its first vice-presidents. He took great pains to be present at its meetings, where he was much respected; he was also a member of the first executive committee; his professional views and opinions were always treated with deference and respect, being always marked with thought and judgment. He was very liberal in advancing the profession in the early day. When the "American Journal of Dental Science" was established he showed his professional enthusiasm by subscribing for 20 copies of the journal to help put it on a substantial basis.

He invented an ether inhaler, one of the most practical inhalers ever invented, which was patented about 1848. He had the reputation as a skillful operator.

Facts in this sketch were obtained from "The American Journal of Dental Science," Vol. I, 1851, pages 471-474, and Dr. W. H. Trneman.

The author has been unable to locate a photograph of the subject of this sketch.

JOSIAH FOSTER FLAGG, M. D., D. D. S.

ANATOMICAL ARTIST, PIONEER PORCELAIN EXPERIMENTER, AND FOUNDER OF
THE BOSTON SCHOOL OF DESIGN FOR WOMEN.

Josiah Foster Flagg was born in Boston, January 11, 1789, and died December 20, 1853. His father, Dr. Josiah Flagg, was long known as the "pioneer Boston dentist," who may safely be denominated the first native born dental practitioner.

Josiah Foster was the eldest of the family. He received but an indifferent early education. He worked on the farm, later became apprenticed to learn the cabinet maker's trade, thence attended an academy at Plainfield, Conn., and entered as a student of medicine under the tutelage of Dr. J. C. Warren, in 1811. The circumstances under which he commenced his studies were very discouraging, as he had but few friends and no pecuniary resources. He soon became an expert dissector and in the preparation of anatomical specimens.

Dr. Warren, in allusion to Dr. Flagg, at this period, states that "he was well educated as a surgeon, having devoted a year more than usual to his preparatory studies." "He discovered at an early period, great mechanical ingenuity and mental activity."

Flagg was an artist of no mean ability. In drawing, painting, designing and wood engraving he excelled and this too, without the formality of previous instruction.

In 1813, he undertook, in connection with Dr. Warren, the publication of a reproduction of Haller's work on "The Arteries:" the first of the kind ever published: as the custom had hitherto been to describe the larger arteries with but little more minuteness than the smaller. The woodcut engravings were the work of Dr. Flagg's own hand, and were executed with such remarkable skill, as to elicit the highest encomiums from the best judges. The work had a great sale, and in a short time the edition was exhausted: a second was contemplated, but from some cause not issued. The book is now rare; but, for beauty and accuracy of design and execution, will compare most favorably with the similar works of the early day. A few years afterwards he prepared for

Dr. Warren, drawings for a publication called "Comparative Views of the Nervous System." (See reports Mass. Med. Soc., Vol. III, p. 307). Dr. Warren says, "The representations of the anatomy of the leach, lobster, oyster and centipede, were beautifully and accurately done, and would, I believe, do credit to any artist of the present day, for these were executed between thirty and forty years ago." "At an early period, Dr. Flagg contrived various surgical instruments, particularly the bone-forceps, which produced a revolution in the operative surgery of the bones. This was long before Liston's forceps, or any other that I know of."

In 1821 Dr. Flagg published in the "North Eastern Medical Journal," Vol. X, p. 38, a description of his improvements on Desault's apparatus for fracture of the thigh bone, with observations on the treatment. This apparatus was introduced by Dr. Warren into the Massachusetts General Hospital and was used in that and other institutions for years, as the most perfect thing of the kind yet discovered. He also contributed a box or trough splint for fractured limbs and a set of forceps (1828) calculated to fit the necks of every variety of the human teeth, anticipating by about a quarter century, John Tomes of England who is generally credited with that improvement.

After graduating in 1815 at the Boston Medical College, Dr. Flagg practiced for some time in Uxbridge, Mass.; but was persuaded by Drs. Warren and James Jackson to remove to Boston, where he commenced the practice of dentistry. In 1818 he married Miss Mary Wait, daughter of Mr. T. B. Wait of the firm of Wait & Lilley, printers and publishers of Boston. Dr. Flagg's business increased so rapidly, that he was compelled in 1819 to relinquish almost entirely the general practice of medicine, though his inclination still led him to continue the treatment of disease in its chronic forms. For a long period he was almost the only person, except T. W. Parsons, M. D., who was practicing in Boston at that time, who could, with propriety, be termed a "surgeon dentist." His other contemporaries, Drs. John Randall and Isaac Greenwood, confined their attention chiefly to mechanical dentistry, leaving to him the more difficult surgical department. As early as 1831-2 he baked teeth of "clay body, quite passable for form."

In the fall of 1833, Dr. Flagg commenced, in connection with Dr. N. C. Keep, the manufacture of "mineral teeth." In a note on the subject Dr. Keep says, "Dr. Flagg and myself had felt the necessity of a more durable article than the hippopotamus, cows or human teeth. Even French porcelain teeth, of which there was a large assortment, though incorruptible, were unsatisfactory, because unnatural. After careful examination, we concluded

that as yet nothing had been produced adequate to the wants of the profession of the community.

"At that time there were several dentists, who made and used teeth called by various names, such as 'mineral-paste teeth,' 'composition teeth,' 'Metallic teeth,' and etc. Feeling confident that I understood the views of Dr. Flagg, and that he, as well as myself, would be willing to pay well for knowledge of any important improvement in our art, I made personal application to one of the above, offering to pay a reasonable portion of the expense, the art had thus far cost to those initiated into its mysteries.

"The answer received was short; 'I have got the art and it shall live and die with me' No greater stimulus than this rebuff was required by Dr. Flagg or myself, to incite us to renewed exertions, which, we determined should cease, but with success equal at least to that of our rival. A charlatan made his appearance soon after, who professed to understand the whole subject. He exhibited a few specimens, but would not impart the great secret and practical demonstration, unless the very moderate sum of \$1,000 was first secured.

"After devoting ourselves exclusively to this pretended instructor, day and night for about six weeks, my own house having been set on fire, and that of Dr. Flagg narrowly escaping a similar fate, we concluded that it would be best to pay off our *humbug*. Availing ourselves of such general principles, as we had obtained respecting the materials used by him, we began anew our career, for as yet we had not made a tooth which satisfied us. We received aid from our friends, the chemists who prepared for us pure colors, and from mineralogists, who produced excellent feldspar. We planned our course on the principles of science, and kept careful records of our progress. Our success was greater than we expected. In the course of six months, we had the pleasure of knowing that we could make the best mineral teeth."

After this Dr. Flagg continued his experiments in this department of his business, with untiring zeal, until a short period before his decease, never resting satisfied with his attainments, but ever striving to improve; his aim being constantly to elevate every department of his profession to the extent of his ability.

In 1844-5 he conceived the idea of drilling into the nerve-chamber, in order to prevent the ill consequences arising from filling over the exposed or diseased nerve. After testing the operation for between two and three years, he published the result of his observations in *The Boston Medical and Surgical Journal*, Jan. 27, 1847, with drawings illustrating the mode of performance.

Prior to 1846 burs rotated between finger and thumb were the means used for excavating cavities. Amos Westcott about this time devised a finger-ring and drill-socket. Dr. J. F. Flagg about this period published an account of the drill-stock in *The Boston Medical and Surgical Journal* as an adjunct to his method of root drilling. His stock was a simple "Bow-drill" of the watch maker. This is one of the first recorded instruments of its kind.

In 1846 Dr. Flagg and his brother, J. F. B. Flagg, became involved in the somewhat famous ether controversy, taking an early and decisive stand against the legality of patenting such a discovery, and that, as a patent medicine, it should be used by professors of the medical school in the Massachusetts General Hospital, in violation of a by-law of the Massachusetts Medical Society. Though severely censured in some quarters, for the course he took, the justness of his views was at length acknowledged, and subsequently, Dr. Jackson freely gave the whole thing to the public. (For the details of this controversy, see *The Boston Medical and Surgical Journal*, of November 18th, December 2nd, 9th, 16th, 23rd, 30th, or the public prints of 1846.

In 1839 Dr. Flagg became interested in the almost unknown doctrine at that time, of homoeopathia, and the decided stand he took in favor of the new system, cost him the friendship of some of his oldest and best medical friends. He was the first to introduce it to the notice of the Boston public, and to the last of his life was a firm believer in the truths of its tenets. In stating the reasons for this change of opinion, he remarked that he was at first decidedly opposed to it, from the apparent absurdity of its teachings; and it was not, until he had thoroughly tested it by experiment, and witnessed the beneficial effect of the treatment in numerous obstinate cases, acute and chronic, that he gave his adherence to it. His mode of investigating the subject served as a lesson to many in the profession, who, after trying a few of the remedies, without properly understanding their use, or the mode of selection, proceed to denounce the whole system in the most dogmatic manner. After spending some months in the study of homoeopathia, he carefully collected the symptoms of some cases and submitted them to the inspection of experienced homoeopathic practitioners in New York and Philadelphia, who were his personal friends, and administered the remedies according to their direction. This course he pursued for sometime, not trusting his own judgment in the selection of the medicines. After watching their effects in a large number of well marked cases, he became convinced that there was something more than "imagination" in the beneficial results that followed their use. In the space of a few years he collected the records of nearly three hundred cases, mostly of

chronic disease, treated by himself. The results of several were published in the periodicals of the day. He confined his attention almost exclusively to the treatment of chronic complaints, as he had not sufficient leisure for those of an acute nature. The success that attended his treatment brought a large number of those suffering from long protracted disease, to his door; but finding that his own health failed from the pressure of business and close confinement, he was obliged to relinquish in a great measure, the numerous applications made to him.

He was a charter member of The American Society of Dental Surgeons and elected the first vice-president of the society at the meeting of organization in New York City August 18, 1840, at this meeting he was appointed one of twelve to prepare an essay "for the benefit of the profession," the subject assigned him on "The Ligamentum Dentis, so called." He was a member of the Massachusetts Medical Society and so signed himself in his writings i. e.; M. M. S. S. (*Massachusetts Medicinæ Societatis Socius*).

Among his writings are found "The Family Dentist," "containing a brief description of the structure, formation and disease, the human teeth," (1822). On page 69 of this work, he enters his protest against filing the proximating surfaces of the teeth as was customary at that time. His reasons why the file should not be used are as follows: "The particular objections to the use of these instruments are 1. That they do not remove the whole of the decayed parts of the teeth; and it is a fact sufficiently evident to common observation that the disease of caries is often communicated from one tooth to another by contact; and it is equally true, that, while any of the defective part of a tooth is suffered to remain, the liability of that tooth to decay is much greater than if this part were entirely removed. 2. That in all cases the effect of sawing or filing is to deprive the teeth unnecessarily of a great portion of their sound enamel, particularly when these operations are performed on the front teeth. 3. That the crowns of the teeth being broader than their fangs, they often crowd together in such a manner that, by the repeated operations of filing to keep them separated, one-quarter, and sometimes one-third of each tooth is sacrificed by the use of these improper instruments. 4. That separating sound teeth with the file or saw (or, indeed, with any other instrument) is a practice for which there can be no reasonable apology. The idea that they may be too close, and injure each other by lateral pressure, is altogether erroneous, and there are no just grounds, for the belief that, by this operation, they may be prevented from decaying. As a substitute for files and saws, it is now recommended to use, in the operations for caries,

small, crooked knives and other cutting instruments, which are liable to none of the above objections, and which enable the operation to effect the first and (which are) also the most important objects in the treatment of this disease."

In 1841 he received the honorary degree of D. D. S., from the Baltimore College of Dental Surgery.

The School of Design for Women, in Boston, was one of his public efforts. It is founded on the plan of a similar one in Philadelphia. Having visited that school, and becoming interested in its object, he conceived the idea of establishing one in his native city, and had the satisfaction of living to see it placed on a firm basis, as the state recognized its utility and testified its approbation, by an annual grant of \$1,500 for three years. Dr. Flagg personally assisted, not only in its management, but with the valuable aid of his pencil, a scholarship after his name was established.

As one of the pioneers of dentistry, in this country, Dr. Flagg deserves especial consideration. He ever regarded dentistry as one of the noblest of the professions; and it is no wonder that he watched carefully, and censured freely, anything calculated to lower it in the eyes of the public.

He was eminently a benevolent man; not of that class who do good for the praise of men. He ever labored in a private way, to benefit those who required and deserved assistance. The poor and friendless found in "the good doctor" a friend ever ready to assist with counsel and purse, their early struggles with the world.

Of remarkably bland, gentlemanly address, and easy of access, he won the confidence and esteem of all who knew him. Accustomed to the free expression of his opinions, he rebuked presumption and imposture wherever he found it; and as he would never praise unless the object were really worthy, neither would he suffer any personal consideration to effect his estimate of moral or professional worth.

Dr. Flagg was a brother of Dr. J. F. Flagg, a dentist of Philadelphia and the uncle of the late Prof. J. Foster Flagg of Philadelphia, who was named for him.

As a philanthropist, patron of the arts and sciences, and an ethical professional man, he was highly respected and bequeathed a legacy worth example.

After diligent search, the author has been unable to find a photograph of Dr. Flagg.

SIMON P. HULLIHEN, M. D., D. D. S.

PIONEER AND EXPERT IN ORAL SURGERY AND FOUNDER OF THE WHEELING
HOSPITAL.

Simon P. Hullihen, by the will of heaven a gentleman and a man of genius, son of Thomas and Rebecca Freese Hullihen, was born near Milton (in Point township, Northumberland county), Pennsylvania, December 10, 1810.

His family on his father's side was of Irish extraction; on his mother's (Freese, anglicized from Vries) it was of Dutch and English stock. The modern name Hullihen, which has passed through some changes and modifications, was originally Huallaehain. In the seventeenth century the family was driven by Oliver Cromwell from their old home in the province of Munster into Connaught. Later, in consequence of political disturbance, they removed to England about 1750.

Records of the family's deeds of valor and their coat-of-arms are recorded in the office of arms at Dublin Castle. Dr. Hullihen's great-grandfather was a native of Ireland and his descendants from the period of his locating in America up to the death of his father were industrious farmers in Pennsylvania. His father, who was an invalid for many years, died after passing the meridian of life. His mother reached nearly three score years and ten.

The early educational advantages of Dr. Hullihen were limited, embracing the usual course of study at the township school, which terminated when he was sixteen years of age.

From that period, except medically and dentally, he was a self-educated man. During his boyhood when about ten years of age he met with a painful and serious accident, which caused him to be a cripple for a number of years. While playing with other boys near a lime kiln, in which the fire had recently subsided, young Hullihen was pushed or fell through the opening at the top among the hot stones at the bottom. Before he could be extricated from this perilous situation his feet were both severely burned, causing his confinement in bed for nearly two years, during which time he received the constant and devoted care of his mother. After much suffering and severe trials of patience



S. P. Hullihen,

he was able to stand. The injury being to the heels, he at first walked upon the ball of the foot as a necessity, which soon grew into a habit.

At an early period after his recovery he made accurate plaster of Paris casts of his feet, which he had a last maker copy, from which comfortable boots were made, thus showing a natural genius for mechanics. During his protracted confinement to bed he assiduously studied the Scriptures, and his pious mother had great hopes that he might become a clergyman. Although her anticipations were not realized, the religious instruction he received and unusual acquaintance with the Bible acquired remained with him through life.

Two years' confinement under medical treatment necessarily brought him into constant contact with the physician, and this may have given a medical bend to his mind. We know that in early youth he evinced a decided inclination for medical pursuits, especially practical surgery. He extracted aching teeth for his acquaintances and soon became an expert along that line. He did the greater part of such work for the surrounding country, the physicians sending their patients to him. He was constantly reading the best medical and surgical works that he could procure, and at the close of his successful career left a large library, consisting of books by the most reliable writers. He was for many years a regular subscriber to the leading medical and surgical magazines of England and America.

Dr. Cabell, who occupied the chair of surgery in the University of Virginia, was accustomed to illustrate to his class the necessity of the surgeon being able instantly to devise measures to meet an emergency by the incident of Dr. Hullihen when a youth coming to a house where several physicians were ineffectually trying to remove from a young man's throat a fish hook which he had swallowed and which was still attached to the line. As often as they loosened the hook it would fly around and fasten itself anew. Dr. Hullihen bored a hole through a large bullet and passed the line through it and pressed it down against the hook with an instrument and when it was loosened deftly tightened the line, and thus, having fastened the hook into the bullet, was able at once to draw it out.

To what extent his visit to the well-known surgeon, Dr. McClelland of Philadelphia, shaped his career has not been recorded; we only know that he studied for a while under him. And, indeed, he had cause to admire Dr. McClelland's skill in surgery, because prior to placing himself under his treatment he was compelled to walk, with the assistance of a cane, upon the ball of the foot, the heel of each foot being drawn up by the injured tendon:

but by the operation the heel was lowered to the natural position, which enabled him to walk comfortably without a cane, although never overcoming entirely a limp in one foot.

In 1832 Hullihen located at Canton, Ohio, at which place he followed the trade of silversmith, and was, by reason of his proficiency, employed in doing the mechanical work connected with dentistry for some members of the profession in that city. Through this channel he became better acquainted with dentistry and decided to practice it.

Immediately following his marriage in 1835 in Pittsburg he started by steamboat for Kentucky, where he intended to locate, but by reason of an attack of sickness he left the steamboat at Wheeling, W. Va., and upon further acquaintance, liking the place, he was induced to abandon his original purpose of going to Kentucky. He quietly but firmly announced his intention to practice dental, oral and general surgery as a branch of medicine. He soon met with unworthy opposition and antagonism, like others, before and since, and suffered from the malicious attacks of jealous rivals, who were envious of his success and prosperity.

This opposition was mainly caused by the jealousy of one or more members of the medical profession, who circulated malignant slanders with the design of hindering his success. It was perhaps this element of persecution that greatly contributed to excite all the ambition of his noble character and thus caused good to come from the evil his detractors intended, as is witnessed by his ultimate prosperity and usefulness. While suffering under unjust efforts to misrepresent his character and drive him from Wheeling, Dr. Hullihen attended strictly to his own business and soon advanced in popularity and public esteem.

His earliest reputation as a surgeon was acquired by an operation upon a lumberman from the Alleghany river, in which he covered a double hare-lip straightened the nose and, fitting a gold palate, gave the man a very respectable appearance and voice.

He read and digested the English and French works on surgery then existing and boldly entered the field of oral and general surgery, inspired by a noble ambition which counted nothing impossible that ought to be accomplished, and ultimately became the foremost operator of his day.

Dr. Hullihen was an exceptionally remarkable man, a true genius, who possessed the qualities that make a great and successful surgeon. He was especially gifted with original conceptions, his unerring eye and reliant judgment, backed and sustained by the nicest mechanical ingenuity and delicate

manipulation, overcame each freshly emerging difficulty and inspired abiding confidence on the part of his patients and in those privileged to see his operations. He was without doubt the most expert oral surgeon of that time; and for originality and fertility of conception and resource in general surgery he had probably no equal.

Considering the state of dental surgery in the Southwest—in fact, throughout the United States—at that period, one's wonder is excited to know where Dr. Hullihen derived his high standard of practice in that department of surgery with which he had so great success. The best solution of this problem is that nature had destined him to be a master of the calling he loved and in which he attained such a wonderful success.

He received the degree of doctor of medicine from the Medical Department of Washington College, Baltimore, Md. However, he never practiced general medicine, but confined his activities to dental and surgical operations.

The honorary degree of D. D. S. was conferred upon him by the Baltimore College of Dental Surgery in 1843.

Patients of all classes in great numbers from the surrounding country flocked to Wheeling to secure his invaluable services.

The most prominent project of Dr. Hullihen was to establish a public hospital at Wheeling where the sick and disabled of all classes might receive proper medical and surgical attention. He earnestly exerted himself along this line, and as a member of the city council he endeavored to enlist the citizens in this humane enterprise, but at first without success; nor was he able, during several years' effort, to secure material aid from any quarter. In the meantime his growing reputation as dentist, surgeon and oculist was attracting patients from a distance, and to meet the exigencies of his private practice he established an infirmary of his own in East Wheeling. Into this enterprise he put all his energies, and it soon proved a great success and continued so up to the time of his death. At length, with the aid of the good Bishop Whelan, he also established a hospital in North Wheeling under the charge of one of the religious orders of the Roman Catholic Church. With the bishop's hearty co-operation he entered upon the work of building up this institution with all the earnestness and zeal which marked his character.

A house was purchased by the bishop for the residence of the "sisters," and Dr. Hullihen supplied it with patients at once to the extent of its capacity, and March 12, 1850, a charter was obtained for "*The Wheeling Hospital*," from which has grown what is now a large and well-equipped institution.

Dr. Hullihen contributed largely to its prosperity by his own professional exertions and by his assiduous care in the management of every department. Benevolently inclined persons came to his aid, and supported by the liberal expenditures of the bishop and the gentle charity of the good "sisters" and the eminent skill of Drs. M. H. Houston and John Frissell, respectively physician and surgeon, the hospital was a brilliant success from the beginning.

To give an idea of the extent of the range and operations performed by Dr. Hullihen during the last ten years of his life, the memoranda on his books show that he operated:

For cataract, about 200 times; for hare-lip, about 100 times; for cleft palate, about 50 times; for cancers, about 150 times; for antrum cases, about 200 times; strabismus, about 100 times; making new noses, about 25 times; making new lips, about 50 times; making under jaws, about 10 times; general surgery (club-foot, etc.), about 200 times.

Add these to a busy practice of a successful dentist practicing in all branches of his profession, and one can realize the great energy and usefulness of the man. Few have lived to accomplish as much in a greater number of years.

Dr. Hullihen was a member of the American Society of Dental Surgeons, the Ohio County Medical Society and the Mississippi Valley Association of Dental Surgeons. Before these societies he read various valuable and important papers on surgical specialties, most of which were subsequently published in the *American Journal of Dental Science* and the *Dental Register*. Amongst them were essays entitled:

"An Essay on Odontalgia" (1839); "Treatise on Hare-lip and Its Treatment" (1844); "An Essay on Cleft Palate and Its Treatment" (1845); "An Essay on Abscesses of the Jaws and Treatment" (1846); "Report of a Case of Elongation of the Upper Jaw, With Distortion of the Face and Neck, Caused by a Burn, Successfully Treated" (1849); "Anesthesia," "An Essay on Abscessed Antrum," "Observations on Tooth Ache," "Dental Neuralgia" and "Forceps."

His style of writing was clear, energetic and original, and his contributions to the subject of oral surgery greatly enhanced our literature. His high ideals in regard to the profession of dentistry are expressed in an utterance in which he said: "*The dentist must carry upward the standard of his profession and plant it upon the broad platform of medical science; he must claim for himself and his profession the same respect and importance awarded to other*

branches of the healing art, and that, too, upon the same ground—the ground of a thorough scientific education.”

His widespread reputation and great success as a surgeon went far to secure recognition for the practice of dentistry as an affiliated branch of the medical profession and as standing upon an equal footing with the practice of medicine and surgery.

The *Dental Register* was started under the auspices of the Mississippi Valley Association of Dental Surgeons, 1847, as a quarterly. The publishing committee were S. P. Hullihen, Wheeling; B. B. Brown, St. Louis, and James Taylor, Cincinnati, who served one year, to be succeeded by Dr. Taylor, who assumed the editorship.

Dr. Hullihen was inventor of many new forms of dental and surgical instruments, amongst which the Hullihen compound root forceps, described in the *American Journal of Dental Science* (Vol. IV., June, 1844, page 254), is the most conspicuous. He never took credit to himself for these improvements, but allowed the cutlers who made them the free use of the designs and patterns that he originated, and therefore most of his surgical instruments have lost their identification with his name. Occasionally, however, in hospitals and elsewhere one still hears of this and that instrument in connection with it. One of the operations that he advocated was known as “Hullihen’s Operation of Rhizodontrophy,” first advocated in 1848 and published by him in the *Philadelphia Medical Examiner*, October, 1852. It consisted of drilling into the pulp cavity at the edge of the gum to relieve congestion preparatory to introducing a metal filling in a cavity with an exposed pulp. The necessity of destroying the pulp would thus seem to be obviated, as the vitality of that organ by this operation could be guaranteed beyond a question of a doubt.

This operation was adopted by the best dentists, but it soon met with disfavor in the profession on account of its unsatisfactory results, proving it to be unscientific and unsanitary, and was speedily abandoned. This, of all he advocated, was the only method that was regarded as a fallacy and unphilosophical by the profession. Dr. Hullihen performed an ingenious and successful operation of resection of the lower jaw, which is described in *Bond’s Dental Medicine*, page 275 (1851).

Dr. Hullihen describes his operation as follows:

“Miss Mary S——, aged 20, daughter of the Hon. Wm. S——, of Ohio, came to Wheeling in the spring of 1848, to obtain relief from the effects of a very severe burn, which she had received some 15 years before. The burn was principally confined to the neck and lower part of the face, and

its cicatrix produced a deformity of the lower part of the face, and its cicatrix produced a deformity of the dreadful character. Her head was drawn downward and forwards, chin was confined within an inch of the sternum, the underlip was so pulled down that the mucous membrane of the left side came far below the chin, the under jaw was bowed slightly downward, and elongated, particularly its upper portion, which made it project about one inch and three-eighths beyond the upper jaw. In front there was scarcely any appearance of either skin or neck. She was unable to turn her head to either side. The cheeks and upper lip were dragged considerably downward; she could not close her eyelids; she could not close her jaws but for an instant, and then only by bowing her head forward. She could not retain her saliva for a single instant; and, as might be expected, her articulation was very indistinct.

"She had been taken to the city of New York some years before for the purpose of being relieved from this deformity, and was placed under the care of two of the most distinguished physicians in that city, who performed an operation by dissecting up the cicatrix on the neck, then raising the head and sliding up the cicatrix from its original position, leaving a raw surface below to heal up by granulation. I need scarcely add that the operation was entirely unsuccessful.

"After a careful observation of the case, it became evident that such a complicated deformity could be best remedied by performing three separate operations; one upon the jaw, another upon the neck, and third upon the under lip.

"To remove the projection of the under jaw, seemed to require first attention. Unless that could be done the other operations, however successful, would add but little, if any, to the personal appearance of the patient. The lengthening of the jaw had taken place entirely between the cuspidatus and first bicuspid tooth of the right side, and between the first and second bicuspids of the left. By the elongation, the teeth just described were separated on both sides about three-fourths of an inch.

"To saw out the upper edge of these elongated portions of the jaw, and then to divide that part of the jaw in front of the spaces thus made, by sawing it through in a horizontal manner, so as to permit the upper and detached portion to be set back to its original position—appeared to be the only possible way of remedying the deformity. This plan I therefore adopted, and performed the operations on the 12th day of June, in the manner now prescribed.

"The operation was commenced by sawing out, in a V shape, the elongated

portions, together with the first bicuspid on the left side, each section extending about three-fourths of the way through the jaw. I then introduced a bistoury at the lower point of the space from which the section was removed on the right side, and pushed it through the soft parts close to and in front of the jaw, until it came out at the lower point of the space of the left side. The bistoury was then withdrawn, and a slender saw introduced in the same place, and the upper three-fourths of the jaw, containing the six front teeth, was sawed off on a horizontal line ending at the bottom of the spaces before named, the detached portion being still connected on the outer and inner side, to the jaw below, by the soft parts.

After having with the bone nippers removed from the detached portion the corners which were created by the horizontal and perpendicular cuts of the saw, it was set back, so that the edges from which the V-shaped sections were removed came together.

"Thus it will be perceived that this portion of the jaw and teeth, which before projected and inclined outward, now stood back and inclined inward, and in its proper and original place.

"In this position the jaw was secured, by passing ligatures around the cuspidati in the detached portion and the now adjoining bicuspids in the sound portion, then taking an impression of the jaw in very soft wax, a cast was procured, and a silver plate struck up and fitted over the teeth and gum in such a manner as to maintain the parts in that same relation, beyond the possibility of moving.

"The patient declared that the operation gave her little or no pain. There was a little swelling about the chin during the first three days after the operation, but not the slightest uneasiness. In this way the case progressed; the gum healed in a few days, the jaw united strongly and in the time bones usually unite, and the wearing of the plate was discontinued within six weeks after the operation was performed."

As a dentist and surgeon Dr. Hullihen was regarded as eminently judicious and skillful, and as a man he was a rugged type of an uncut diamond. His gruffness of manner at times terrified the timid, yet almost every one, it would seem, was quickly won by his manly, straightforward frankness and generous impulses; and if at times he seemed brusque, it soon became apparent to all who knew him well that this was in consequence of his open-hearted, straightforward frankness and his intolerance of all shams and affectations. Few men have ever had as deeply devoted friends and enthusiastic admirers.

His personal appearance was attractive. He was about five feet eight or

nine inches tall and weighed about 140 pounds. His eyes were his most striking feature—large hazel brown, which revealed in a very striking manner the changing thought of his mind—usually full of tenderness and sympathy, with frequent bright plays of wit and humor, they could change quickly to flashing indignation at anything mean, base or cowardly.

He was of a highly nervous organization, was very fond of poetry, which he seemed to prefer above all kinds of light literature in his hours of recreation. He was a man of spotless integrity and purity of life, was always scrupulously neat in his personal appearance and attire. He was very fond of pets—horses, dogs and other animals—and various kinds of birds found in him a devoted friend and ardent admirer. He usually visited once a year his professional friends in Philadelphia and Baltimore. These visits were not only beneficial to his health, but were no doubt helpful in keeping him in touch with all that was going on in his particular branches of the profession.

One of Dr. Hullihen's chief characteristics was his generosity. No sufferer ever applied to him that he did not respond with his open-hearted and free-handed liberality. He was especially tender and sympathetic with the poor, performing operations that were marvelous and rare in those days gratuitously where the patient was unable to pay for them. One-third of all his labor was a work of charity. He made it a rule of his professional life to make no charge for services rendered to a clergyman—no matter where resident or of what denomination. Thus in the prosthetic department of his practice alone in a single year he supplied charity work amounting to about two thousand dollars at the ordinary rate charged to others. In all charitable or political causes that were to be successfully carried through in Wheeling it seemed a necessary preliminary to obtain for its interests Dr. Hullihen's co-operation and approbation.

Dr. Hullihen was married, April, 1835, in Pittsburg, Pa., to Miss Elizabeth Fundenberg (originally the name was Von der Burg, a very distinguished family in Germany, who had settled in Maryland in the first half of the eighteenth century). To them were born five children, of whom Mrs. J. H. Burkhart, widow of Dr. W. D. Burkhart, and the Rev. W. Q. Hullihen alone survive.

Dr. Hullihen died at Wheeling March 27, 1857, in the forty-sixth year of his age, of typhoid-pneumonia, caused by a severe cold from exposure after becoming overheated in the operating theater of the Wheeling Hospital. It was estimated that from four to six thousand inhabitants of the little city (as it was then) and the surrounding country sought to honor his name and mem-

ory by attending his funeral. Upon the announcement of his death the medical profession of Wheeling, the Wheeling Hospital Association and the city council each called a meeting and passed resolutions of respect testifying to Dr. Hullihen's "eminent talents, his remarkable beneficence and his unwearied devotion to pursuits of public and private utility." A mass-meeting of the citizens of Wheeling was also called at the courthouse to express their profound sorrow and grief at Dr. Hullihen's death and their appreciation of his great achievements. At this meeting the following resolutions were adopted:

"Resolved, That we have heard with profound sorrow of the death of Dr. Hullihen and have assembled to express the universal respect of the community for his memory. His decease in the prime of life, in the midst of an honorable and useful career and in the full vigor of his rare intellect, has impressed us with a deep sense of the unusual calamity. Eminent in his profession and exalted in his personal character, he achieved a noble fame, in which gratitude for his benefactions are mingled with admiration for his genius. To us he was endeared by long association, by nobility of nature and by many generous and estimable qualities. By those who knew him best he was most beloved. For his loss we feel the peculiar loss of friends, added to the general sorrow for the decease of a distinguished citizen.

"Resolved, That we will erect a suitable monument for the deceased in testimony of our respect for his memory, and that a committee be appointed by the chairman to carry this resolution into effect."

His passing closed the career of one of the really unique and original characters of dentistry and surgery—truly a great man; and, as stated by the resolutions of the medical faculty, "*The eminent position which he had attained by his own exertions furnishes a striking illustration of how little genius is not to be controlled by adverse circumstances.*"

The distinguished Alexander Campbell, known as "Bishop Campbell," the founder of the church called "the Disciples," but more familiarly "the Campbellite Church," wrote of him as follows in the magazine called the *Mil-lennial* (Bethany, Va.) *Harbinger*, May, 1857:

"His genius, science and art developed in the unprecedented and extraordinary operations performed by him in his profession have attracted the attention and constrained the admiration of the whole profession wherever he was known, from the banks of the Ohio to those of the Thames, from Boston to New Orleans.

"Amongst American surgeons he had no superior, probably no equal. In dentistry he was not equaled in America. He performed operations which,

when exhibited in Great Britain, constrained certain jouranalists to announce that such like had never been performed in Great Britain.

"He was proverbially humane and generous. In his hospital as well as in his private practice he sympathized with suffering humanity in all its forms of misfortune and distress, and was ever ready to extend relief to the wretched sufferer without any other elaims upon his attention than those of common brotherhood."

When a man's race is run no higher eulogy can be paid him than the tribute paid to Dr. HULLIHEN by his fellow-townsmen in the inscription engraven on the large marble shaft that marks his last resting place in Mount Wood Cemetery:

"Erected by the citizens of Wheeling to the memory of one who had so lived among them that they mourned his death as a public calamity."

On the opposite side is skillfully carved that most appropriate Scriptural scene of the good Samaritan binding up the wounds of the hapless traveler, and these words:

Eminent as a surgeon, the wide fame
of his bold, original genius was every-
where blended with gratitude for his
benefactions.

The facts contained in this sketch were obtained from Biographical Sketch in "North American Medico-Chirurgical Philadelphia Review" of January, 1858.

Early numbers of "The American Journal of Dental Science" and "The Dental Register," "The Dental News Letter," Vol. VI, 1852, and Rev. Walter Q. Hullihen, Staunton, Va., son of the subject of this sketch.

SHEARJASHUB SPOONER, M. D.

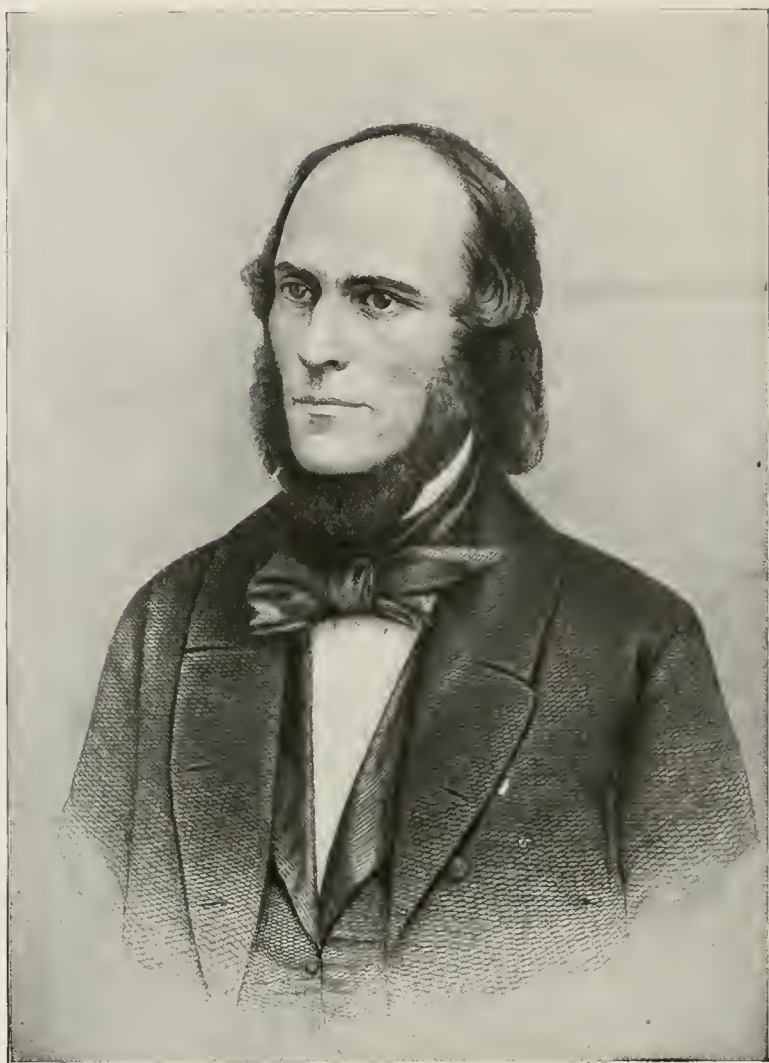
MAN OF LETTERS, ART COLLECTOR, AND THE FIRST TO PUBLISH TO THE PROFESSION THE USE OF ARSENIC FOR DEVITALIZING THE DENTAL PULP.

The progenitor of Dr. Shearjashub Spooner, William Spooner, came to Plymouth Colony about 1637, with his mother and sister, from either Holland or England. Further than that he was a "redemptioner" (a term applied to emigrants brought over without prepayment of passage and who on their arrival were sold by auction for the shortest term of years for which any one would take them and pay the passage money), but little is now known of his early life. He died in 1684, leaving nine children. His second son, Samuel, was the great great grandfather of the subject of our sketch. Samuel's third son, Daniel, was his great grandfather; Daniel's second son, Shearjashub, his grandfather, and Shearjashub's second son, Paul, was his father. While these men were not noted for their wealth, they one and all were men of probity, and worthily served the community of their day and generation.

Dr. Shearjashub Spooner was the sixth son, and eighth child of Paul and Deborah (White) Spooner. He was born December 3d, 1809, in Orwell, Addison Co., Vermont. His father was by trade a house carpenter and joiner.

Young Spooner grew to manhood, and was educated in the village of Brandon, Rutland county. He attended an academy and graduated at Middleburg, in 1830. When he reached the age of eighteen, by invitation of his brother, Dr. John Roach Spooner, a talented dentist of Montreal, Canada, he went to that city and commenced the study of the classics and medicine under his brother's instructions. He was a diligent student and soon became a proficient scholar. From the general study of medicine he turned his attention to dentistry, and in 1833, having mastered the important branches of medical knowledge, he went to New York City. Desiring to further qualify himself for his chosen profession, he entered the College of Physicians and Surgeons of the University of the State of New York, taking the full course, and graduated with the degree of M. D., April 6, 1835.

Immediately after graduation he commenced the practice of dentistry, soon acquiring a large and lucrative practice, and becoming one of the best



S. Spooner

known dental practitioners of his time. He chose as the subject of his inaugural thesis for graduation, "The Physiology and Diseases of the Teeth," which he subsequently published in an octavo pamphlet of 32 pages. In this work we find evidence that his views upon this important subject were more in accord with those of the present than were those generally held by the profession of his day.

His second contribution to dental literature was a little 12mo volume of 208 pages, entitled "Guide to Sound Teeth, or a Popular Treatise on the Teeth," published at New York, 1836, and a second edition in 1838. This work is divided into three parts: the first treats of the anatomy and physiology of the teeth, the second is a republication of his inaugural thesis, and the third upon diseases of the teeth. The last part is of historic interest, as in it for the first time the use of arsenic for pulp devitalization as a step toward tooth preservation is recommended. The use of arsenic for relieving pain in the teeth was well known to the ancient Arabian medical writers of more than a thousand years ago, and is mentioned by them under the name of "sandarach," a word in the Eastern languages equivalent to realgar, the red sulfide of arsenic. It seems strange that with this suggestion so often repeated by these ancient writers, dental practitioners should have so long overlooked arsenic in their search for some agent to destroy this troublesome organ. But so it was. On page 115 of the first edition of this work he says: "The nerves of the teeth may be certainly and effectually destroyed, with little or no pain to the patient, and without the least danger, by means of a little arsenious acid (arsenic, ratsbane) applied to the nerve. We claim for our brother, Dr. J. R. Spooner, of Montreal, the credit of this invaluable discovery, and for ourselves no small share of credit for thus frankly laying it before the dental profession and the public." He claims that they had used it a long time, and that it had been the means of restoring to usefulness many teeth that would without it have been extracted. In this connection he also recommends the use of sheet lead, for capping exposed pulps, and credits Dr. Torrey, Professor of Chemistry in the College of Physicians and Surgeons of New York, with recommending a little asbestos to be put into the cavity of a tender tooth, previously to plugging. "As it is very soft and insoluble in water, he thinks it may prove of great advantage."

He closes his remarks upon pulp treatment with the following paragraph: "If the nerve of a tooth be much exposed, we think it much the better practice to destroy it at once by means of the arsenic, and then to plug the tooth securely. All other methods of treatment are often abortive, and, if successful,

the nerve often dies away gradually." He also was the author of "The Care and Preservation of the Teeth," which shows his familiarity with the underlying principles of dental science.

Both he and his brother, Dr. John Roach Spooner, were much interested in the possibilities of porcelain as a substitute for the perishable material used in constructing artificial dentures. Dr. Spooner entered into correspondence with others who were experimenting with it, suggesting that an interchange of experience and comparison of formula, etc., would prove of mutual advantage. He was, however, a little too early with such sentiments. While all were ready to receive, all were not ready to give. He did his part by publishing, in 1838, "An Essay on the Art and Manufacture of Mineral, Porcelain, or Incorruptable Teeth." In this little work he gave all the information he had been able to gather by his experiments and research upon porcelain working. While he was not a pioneer in adapting porcelain to the needs of prosthetic dentistry, for it had passed the experimental stage when he took it up, his little work proved very helpful to his brother practitioners, and his example of so freely giving the profession the results of his own labors had much to do with introducing into the profession a more liberal spirit. He also published, in 1838, "A Treatise on Surgical and Mechanical Dentistry."

He was a member of the Montreal Medical Society and became a member of the American Society of Dental Surgeons at its organization, and served upon its first publication committee. Shortly after this event he became very much engrossed in art work, in consequence of which he gave to professional matters less attention.

The work in which he was best known is his restoration of the engravings of "Boydell's Illustrations of Shakespeare." This employed much of his time for years and was a great undertaking, requiring a vast outlay of energy and money. The idea of the Boydell Illustrations was conceived by Mr. J. Boydell, a wealthy and influential alderman of the city of London. In 1785 he made a proposition to build a national historical art gallery and fill it with paintings by the foremost painters of Great Britain. The illustrations of Shakespeare was his great scheme in which he concentrated his efforts. Numerous designs were made and of these 134 were accepted. They were painted in oil by thirty-six of the most eminent British painters and were placed permanently in a splendid gallery built especially at his expense and known as "Boydell's Shakespearean Gallery."

The next step was to engrave the designs. This was done by thirty-two prominent British engravers and two sculptors. The engravings were on

copper, the size of the plates being 24 by 30 inches. Their completion required from four to five years, so careful and elaborate was the work of the engravers. The whole undertaking was completed in 1803. To supply the multitude of English and foreign collectors with copies of these fine engravings, numerous impressions were taken from the plates, which in the course of time became worn. They were finally sent to the United States and offered for sale. Dr. Spooner became the purchaser. He at once set at work to restore them. He secured the services of Mr. Geo. Parker, who had been the pupil of Robert Thew, one of Mr. Boydell's engravers, and one of the most famous engravers of his day. Under Mr. Parker's supervision, assisted by numerous skillful artists, the plates were completely restored. The entire work was printed in folio and was subscribed for largely by the librarians of our country and by prominent men. It was known as the "American Edition of Boydell's Illustrations of Shakespeare," containing 100 original plates and letter press descriptions of the plates. The latter was written by Dr. Spooner.

Besides this important work, Dr. Spooner published two other works of great interest and value. The first was "Biographical and Critical Dictionary of Painters, Engravers, Sculptors, and Architects," a volume of 1,200 pages, 1853-1865. This was one of the most satisfactory works of the kind ever printed, bearing the marks of great labor and knowledge of the subject. It contained cuts of various ciphers and monograms used by artists to distinguish their works, and gives historical sketches of the various branches taught in different schools of art.

His second important literary work was "Anecdotes of Painters, Engravers, Sculptors, Architects, and Curiosities of Art," third volume, 1853, a work of 1,000 pages. He completed a much more extensive work on this subject, but was prevented by death from carrying out his intention. He also published an edition of the "New Testament," superbly embellished and illustrated by engravings, after designs by the best Italian artists. He also completed and published several minor works from his own pen.

Dr. Spooner was a most assiduous worker. For six years, during which time he practiced his profession, restored "Boydell's Illustrations" and wrote two books, he never once remitted his labor for pleasure or recreation.

A few years prior to his death, he projected an undertaking even more arduous than the restoration of the Shakespeare Engravings. He purchased the worn plates of the two great French Art Museums, "The Musée Française," imported them and proposed to restore them. But the customs duties were so heavy that he could not afford to take possession of them, and after

considerable negotiation and vainly seeking relief from the Secretary of the Treasury, he finally abandoned the enterprise.

Dr. Spooner continued his unwearied activity until his death. For some time before this event he was a physical wreck. He died March 14, 1859, after a lingering illness of chronic nervous trouble, and was buried at Plainfield, New Jersey. He was married November 26, 1836, to Mrs. Jane E. Darrow, widow of Allen Darrow, and daughter of John and Elizabeth Foot. They left no children. Dr. Whipple Spooner, who practiced with Dr. John Roach Spooner at Montreal, was a brother of John Roach and Shearjashub.

His character was singularly amiable. Though impulsive in every good cause, he was immovable in purpose and resolution. It is interesting to note that he, like many others of the early men of dentistry, was possessed of much culture and artistic talent.

The facts contained in this sketch were obtained from:

"The Memorial of William Spooner, 1637, and of his descendants to the third generation of his great grandson, Elnathan Spooner, and his descendants" to 1871, by Thomas Spooner; private edition, Cincinnati, 1871.

"The records of William Spooner, of Plymouth, Mass., and his descendants," Vol. I, by Thomas Spooner, Cincinnati, 1883, p. 333.

Appleton's Cyclopaedia of American Biography, Vol. X, p. 635, and Mr. Fred C. Spooner, Brandon, Vt., nephew of the subject of this sketch.

BENJAMIN ADOLPH RODRIGUES, M. D., D. D. S.

A PIONEER OF SOUTH CAROLINA.

B. A. Rodrigues was born at Charleston, S. C., 1815. Obtained his education at the Charleston High School and Charleston College, and read medicine in the office of Dr. Henry Frost. He studied dentistry as an indentured apprentice with Dr. C. Starr Brewster who practiced for the most cultivated residents of Charleston, S. C. Upon finishing his apprenticeship with Dr. Brewster, young Rodrigues received the following diploma or certificate from his preceptor.

"Mr. B. A. Rodrigues having pursued the study of Medicine and Surgery as a private pupil under the instruction of H. Frost, M. D., Prof. of *Materia Medica* in the Medical College of South Carolina, and having attended lectures in that institution, has for some time past been a pupil in my office and acquired a knowledge of Dental Surgery which qualifies him to perform any operations therein. I therefore recommend him to my friends and the public as being fully entitled to their confidence.

C. STARR BREWSTER, *Surgeon Dentist.*"

"Charleston, 1st March, 1832."

This old document is now in the possession of Dr. Rodrigues' namesake, Dr. R. Ottolengui of New York City. Back of it in Dr. Rodrigues' handwriting is recorded "took charge in Aug. 1883." At this time Dr. Brewster left his practice in charge of Dr. Rodrigues and removed to Paris, France, where he became celebrated as one of the pioneers of American dentistry in Europe, and eventually was succeeded by his assistant, the late Dr. Thos. W. Evans.

After succeeding to Dr. Brewster's practice at Charleston, young Rodrigues finished the course of lectures at the Medical College of South Carolina, and graduated as M. D. 1834, the names of such prominent factors appearing on his diploma, as those of Drs. Holbrook, Frost, Moultrie, Ravenel and Wagner.

With his skill and personality, Dr. Rodrigues readily held the practice which Dr. Brewster had built up and later on became the foremost dentist of



B. A. Rodrigues.

Mr. D. A. Rodriguez having pursued the
study of medicine and surgery as a
Private pupil under the instruction of
H. Moss M.D. Prof. of Materia Medica in
the Medical College of La Sa. and having
attended lectures in that institution
has for some time past been a pupil
in my office and acquired a knowledge
of Dental surgery which qualifies him
to perform any operations therein. I there-
fore recommend him to my friends and
the Public as being fully entitled to their
confidence.

E. Goodwin
Surgeon-Dentist

Charleston
1st March 1838



C. STARR BREWSTER.

his state and section. His local and state fame gave him standing in Eastern and Northern cities and at the meeting of organization of the American Society of Dental Surgeons, August 19, 1840 in New York City he was elected a member of the Society. His affiliation with the society continued until the society ceased to exist, still desiring the best professional information and the association with his professional conferers later on when the successor to this society, i. e., the American Dental Convention was organized he became a member and at the annual meeting held at Saratoga Springs, August 7-10, 1860 served the society as vice-president, an office he had been elected to the year before. The Baltimore College of Dental Surgery conferred the honorary degree of D. D. S. upon him in 1850.

Record of his literary contributions are scarce. The early issues of *The American Journal of Medical Sciences* contains a report of a "*Case of exostosis of the upper jaw*" and "*Dentalogia*," a poem on the Diseases of the Teeth and their proper remedies, by Solyman Brown, M. D., with notes practically illustrative and explanatory by Eleazar Parmly, Dentist, New York 1840. page 175 is published a "Memoranda from the Note book of B. A. Rodrigues, M. D. describes a case of irregularity with the illustrations of the method and simple yet ingenious appliance he used to correct the malformation. He invented one of the first cleft palate obturators recorded in this country.

He was a highly intellectual man, a student of arts, sciences and theology. He called himself a deist and disciple of Tom Payne, whom he considered had drilled holes in the bible through which any intellectual mind could see the absurdities, and could recite Payne's arguments by the page.

He was a member of the Charleston Board of Health in 1849. Dr. Rodrigues continued in practice at Charleston until his death from apoplexy, October 19, 1871 at the age of 58. He was buried at Magnolia Cemetery, Charleston, S. C. He was married to Miss Cecelia Soloman, February, 1835. To them was born one daughter who died in infancy, subsequently adopted a daughter who married Daniel Ottolengui, and they had three children as follows, Rodrigues Ottolengui, M. D. S., Lee Ottolengui and Mrs. Helen Hirsch all of New York.

The principal facts in this sketch were obtained from Dr. Louis P. Dotterer, Charleston, S. C., Dr. R. Ottolengui, New York and "*The Jews of South Carolina, 1824-1860*," pages 203-5.

JOHN GARDNER AMBLER, M. D., M. D. S.

DENTAL SOCIETY ENTHUSIAST AND POET.

John Garduer Ambler was born in South New Berlin, Chenango County, New York, Sept. 16, 1816. He was a direct descendant of Richard Ambler who came to America in 1600 and landed at Plymouth, Mass. Three of his sons were in the Revolutionary War. John Gardner Ambler was the son of John Ambler, a native of Salem, N. Y., a farmer in his early life, later a dental practitioner for a while, then moved to Western Virginia where he bought a large tract of land, lived, and married Miss Wheeler, who died when young John G. was quite young. He spent his early boyhood on his father's farm, until 1832, when he attended the Reneselaer Polytechnic Institute, at Troy, N. Y. and afterwards studied medicine at Waterford, Saratoga Co., N. Y., and then began the study of dentistry with his uncle, Daniel Cooley Ambler, a prominent dentist of New York City, and commenced practice in 1842.

June 5, 1836, he married Miss Rachel Norris Tees, daughter of Jacob Tees of Philadelphia, one of the largest ship builders of his day, who was succeeded in this business by his cousins, the Cramps. He practiced a while in Philadelphia, then returned to New York City, locating at 26 Park Place, then a fashionable part of the city. Next at 31 Washington Place, thence to 25 West 23rd street, where he built a house and office, which he retained until he purchased a country home at Dobbs Ferry, where he was president of the Town Council, and next located his office at 16 East 42nd street, where he continued practice until his death, which occurred of pneumonia, April 6th, 1885.

Dr. Ambler was an expert in the manufacture of artificial teeth and his work shown at different exhibitions received much praise from the profession, also he was awarded a number of gold, silver and bronze medals for his skill. The American Institute at New York as well as the first exposition at London honored him in this manner.

Dr. Ambler's greatest forte was his interest and enthusiastic support of dental societies. In 1842 he became a member of the American Society of Dental Surgeons, when the interest in this society lapsed, he became an early



Isaac Ambler

member of the society's successor, the American Dental Convention, organized at Philadelphia, August 2, 1855. In 1866 he served as vice-president and in 1867 as president. This honor was again bestowed upon him in 1869 and 1870-71. Before the convention Dr. Ambler delivered numerous addresses, mostly addresses of welcome and responses to the same, in which he always introduced one of his original poems, for he was a rhymster of no mean ability. Many of these poems may be found in the bound volume of the Transactions of the Convention, published in 1874, of which Dr. Ambler was chairman of the publishing committee. The members of the convention presented him with a gold watch and chain in appreciation of his services in behalf of the society, for it was mainly through his personal effort that the society continued in existence as long as it did.

He was a member of the executive committee several years, and treasurer 1874-5.

November 17th, 1847, the Society of Dental Surgeons of the State of New York was organized in New York City, of this Dr. Ambler was elected the first secretary. This society did not exist very long. December 2, 1857 the New York Dental Society was organized in New York City with Dr. Ambler also as its first secretary. This association also was not of long duration. June 30th, 1868, the present Dental Society of the State of New York was organized at Albany. Of this Dr. Ambler was one of the promoters, and elected one of the Board of Censors to represent the first district, or New York City auxiliary. In 1866 the American Dental Protective Society was organized with Dr. Ambler its first President.

In 1855 Dr. Ambler began the publication of *The Dental Monitor and Quarterly Miscellany* on the title page of which his name appeared as editor. It was an attractive 24-page journal devoted and intended for the information of dental patients, more than for the professional reader.

Dr. Ambler in the early '50's began keeping a "Journal of Dental Operations," i. e., a method of keeping record of fees charged, location and kind of operation and etc., similar to the dental records of the present time.

Religiously he was an Episcopalian and for years a vestryman, and the senior warden of Christ Church, New York City. In politics he was a strong republican.

LEVI SPEAR PARMLY, D. D. S.

A PIONEER AUTHOR AND APOSTLE OF DENTAL HYGIENE.

Levi Spear Parmly, the son of Eleazar and Hannah Parmly, was born August 29, 1790, at Braintree, Vt. He spent his early youth working on his father's farm and attending the district school a few months of each winter.

One day while hoeing corn in the presence of his brothers, he tossed his hoe in the air, exclaiming, "I am through with the hoe, boys," and immediately started upon a career which led himself and his brothers, Eleazar, Jahial, and Samuel Wheelock, into dentistry.

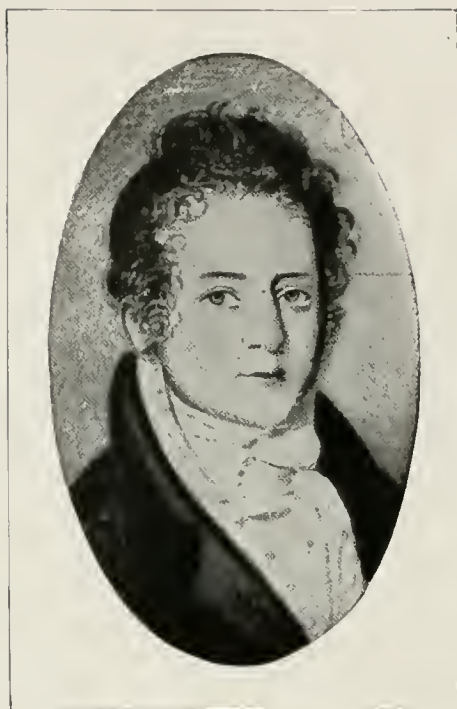
Desiring to better and broaden his condition, he went early in life to Boston, and became the pioneer of the Parmly family in dentistry by entering as an apprentice the office of Dr. Petrie, an English dentist practicing temporarily in this country: later he was associated with Dr. John Randall, an eminent practitioner of high standing in Boston, who took a friendly interest in him and greatly aided his future success by his thorough instruction and good advice. Later, he and his brother Eleazar made a tour of the Southern States, where they practiced in a small way for several years, and meanwhile gained whatever knowledge they could from other itinerant dentists. He located at New Orleans, but, not satisfied with the meagre knowledge he had, in 1817 he embarked for London. He opened an office, 104 Pall Mall, and soon commanded a large clientele. He soon formed the acquaintance of the leading dentists of London and quickly won their friendship. Among them were Messrs. Thomas Bell, John Tomes, Sr., A. Naysmith, and George Waite. For two years his brother Eleazar was associated with him. He tutored his brothers Eleazar and Jahial Parmly. The author has in his possession the original copy of a receipt from Dr. Parmly, *i. e.*:

"Perry, Ohio, September 27th, 1830.

"Received from Jahial Parmly one dollar in full payment for all clothing, traveling expenses, professional instruction and all other dues and demands against him up to this date.

L. S. PARMLY."

Levi S. Parmly is described as a man of fine personal appearance, about



L. S. Parry

five feet nine inches in height, very symmetrical, graceful in his movements, an expert wrestler, and a superior horseman.

He had a pleasing address and, bearing letters of recommendation from prominent Americans, he soon obtained an entrance into the best circles of London society, and won the friendship of some of the first men in England. To get the public's attention, he issued the following endorsement of three of the most eminent surgeons of the day:

"The distinguished professional characters whose names are subjoined have authorized Mr. Parry to announce their approbation of his important improvements for the preservation of the teeth and removing their defects by the adoption of methods, new, simple, and fully warranted by experience."

Astley Cooper, Anthony Carlisle, Dr. Baillie, Physicians and Surgeons to his Majesty, George IV.

Appended to this was the following: "In consequence of the above distinguished professional approbation of my practice, permit me to request your attention to the importance of the teeth and gums, to health, comfort, enunciation, and personal appearance at every period of life.

"I have fully detailed the system on which I have formed my practice in a treatise already before the public. The profession are sufficiently convinced that the causes of diseased teeth and gums have not been satisfactorily made known, although the first anatomist of this age, Mr. John Hunter, employed the greater part of his life in research on them; it has ever continued to be an unsettled question whether the cause of their decay is in the vital connection of their internal structure or depends on substances applied externally. I venture to assert upon unquestionable evidence that caries in teeth is always assignable to the action of substances which corrode that part, and that the prevalence of diseased teeth in families is dependent on the quantity and quality of accumulated matter about them during the first and second dentition, which would not act so powerfully at a later period. A daily attention to cleanse the interstices and to prevent the deposit of acrimonious substances on the crowns and between the gums and teeth are the only means for their constant security. I have contrived a convenient and effectual apparatus for these services.

"1. The polisher for removing roughness, stains, etc., from the enamel or bone without injury and giving the teeth a fine polish.

"2. The brush, being hollow in the middle, cleans at one operation the tops, the outer and inner surfaces of the teeth from injurious substances.

"3. The waxed silk connected with its handle cleans the necks and in-

terstices of the teeth, under the arches of the gums, from all offensive and irritating matter, the principal cause of tainted breath; the above, therefore, may be justly termed the preserver of health and preventer of disease.

"Thus I cheerfully submit what was a desideratum, with the appreciation of my skill in all branches of dentism, to the testimonies of my patients and to the Faculty acquainted with my practice.

"I beg leave to mention also that young professional gentlemen and others may be instructed privately, or received as pupils.

"I have the honor to be,

"Your obedient servant,
"L. S. PARMLY."

Dr. Parmly first received the dental degree from the American Society of Dental Surgeons, who inaugurated the title at the society's organization. The Baltimore College of Dental Surgery also conferred upon him the honorary Doctor of Dental Surgery degree in 1841. He now and again in his writings styles himself "Dental Professor," as in the following advertisement from *Pulson's American Daily Advertiser* (of Philadelphia) for January 1, 1819:

"Teeth.

This day is published by
Collins and Croft,
No. 73 Market St.

In a neat pocket volume with a plate price 87½ cents bound—
A Practical Guide to the management of the TEETH: Comprising a discovery of the origin of Caries or Decay of the Teeth, with its prevention and cure, by L. S. Parmly, Dental Professor.

The great distress which usually accompanies and the inconvenience which always follows the loss of the teeth, makes the discovery of some mode of prevention of Caries very desirable."

He is credited with the authorship of the following:

"A Practical Guide to the Management of the Teeth." Philadelphia, 1816-1819.

"A Practical Guide to the Management of the Teeth, comprising a discovery of the origin of decay, with its prevention and cure." London, 1818.

"Natural History and Management of the Teeth." London, 1820.

"Lecture on the Natural History and Management of the Teeth, the causes of their decay, the art of preventing its accession, and various operations, never before suggested, for the preservation of diseases of teeth." New York, 1820-21.

"On the best Mode of preserving the Natural Teeth." New York, 1842.

"La Naissance et la vie de nos dents." Paris, 1857.

These are well written. While perhaps they contain little really original, they belong to a class, popular in the early days, that bordered closely upon advertising. He assigns as the cause of caries the accumulation of debris around and about the teeth and from the corrosive action of acid in the saliva, and advises as a means of prevention scrupulous care to keep the teeth and their surroundings clean. He quotes freely from dental writers of his day. At this time he was a young man with but little practical experience, yet was an enthusiast on the subject of hygiene.

He read a paper before the American Society of Dental Surgeons at its meeting at Philadelphia, August 11, 1841, entitled "A Dissertation on the Management of the Mouth and Teeth," *American Journal of Dental Science*, (Vol. II., September, 1841, page 28,) and published an article on "The Importance of the Preservation of the Teeth," in the *American Journal of Dental Science*. (Vol. I., New Series, January, 1851, page 165.)

Both of these productions are in line with all his books, and the thoughts expressed are merely repetitions of those they contain. His one theme was "cleanliness;" he presents, however, no other means for attaining it than those well known long before he wrote.

Dr. Parmly has been termed "The Apostle of Dental Hygiene;" rightly does he merit this title, as all his early writings were along this line, if they were not wholly original.

Dr. Parmly was, however, thoroughly in earnest as to the necessity and importance of cleanliness in caring for the teeth; and it is said of him that he would stop a boy on the street or elsewhere, look over his teeth, give him a lecture on their care and a tooth-brush and floss silk, all the while explaining to him their use. He impressed the importance of cleanliness and of daily care of the mouth upon his patients, so that it is stated his *confreres* said, "You can always tell Parmly's patients by their clean mouths."

June 17, 1820, he patented a composition for preserving the teeth. He also introduced the "Argillaceous" tooth-polisher, an instrument he invented for removing stains and discolorations. It consisted of a cylindrical piece of baked clay about five inches long and one-fourth inch in diameter, flattened and bent at each end to an angle of ninety degrees. The mode of use was to moisten in water and rub on the tooth until the stain was removed. This he exhibited at the New York World's Fair, 1854.

In the correction of irregularities he was an early advocate of the use of

simple means, such as floss-silk ligatures, and claimed by their use to obtain excellent results. He possessed genius in carrying his point. The secret of his success in life was his unbounded confidence in himself and in his mode of treatment.

In 1822 he returned to the United States and settled at New Orleans, La., where he practiced for many years. During his later years in this city he spent considerable time operating for orphans and others gratis.

In 1850 he went to Paris and entered upon practice there; he was the authorized general agent of the American Society of Dental Science and the *American Journal of Dental Science* for Europe. In 1857 he wrote in French his last work before his death, which occurred from typhoid fever, July 8, 1859, at Versailles, France. He was buried on his seventieth birthday, August 29, 1859, in the burial lot containing the remains of his ancestors and family at Perry, Lake County, Ohio.

Dr. Parmly was married in 1818 to Miss Eliza Johnston, of New Orleans. To them was born one son, George W. Parmly, and two daughters, Lavinia and Leona. Dr. George W. Parmly was born October 22, 1819. He succeeded his father in practice in New Orleans, remaining there until about 1850, when he went to Europe and operated at The Hague as dentist to the royal family for several years. Later, in association with Drs. Henry C. Parmly and Samuel P. Parmly, under the name of "Drs. Parmly," he enjoyed for fifteen years the largest private practice in Paris, their clientele including many royal and noble Europeans. He afterwards practiced in London, where he died, August 20, 1889.

Dr. L. S. Parmly was one of the charter members of the American Society of Dental Surgeons, and was present at its organization in New York City, August 18, 1840, and was a member of the Society's first Executive Committee. He was active, skillful, and enthusiastic in promoting the best interests of his profession. He was the first of a large family whose names will ever be prominent as men of culture and ability, and whose influence for good in the dental profession was far-reaching.

The facts contained in this sketch were obtained from Levi Spear Parmly's nephews, Dr. Samuel P. Parmly, Chicago, Dr. Ehrick Parmly, Oceanie, N. J., and Mr. J. L. Parmly, Painsville, Ohio; from early numbers of the "*American Journal of Dental Science*," and from the "*Dental Reporter*," Vol. I., February, 1869, p. 179.

DANIEL NEALL, SR.

PIONEER DENTIST, INVENTOR, AND ABOLITIONIST.

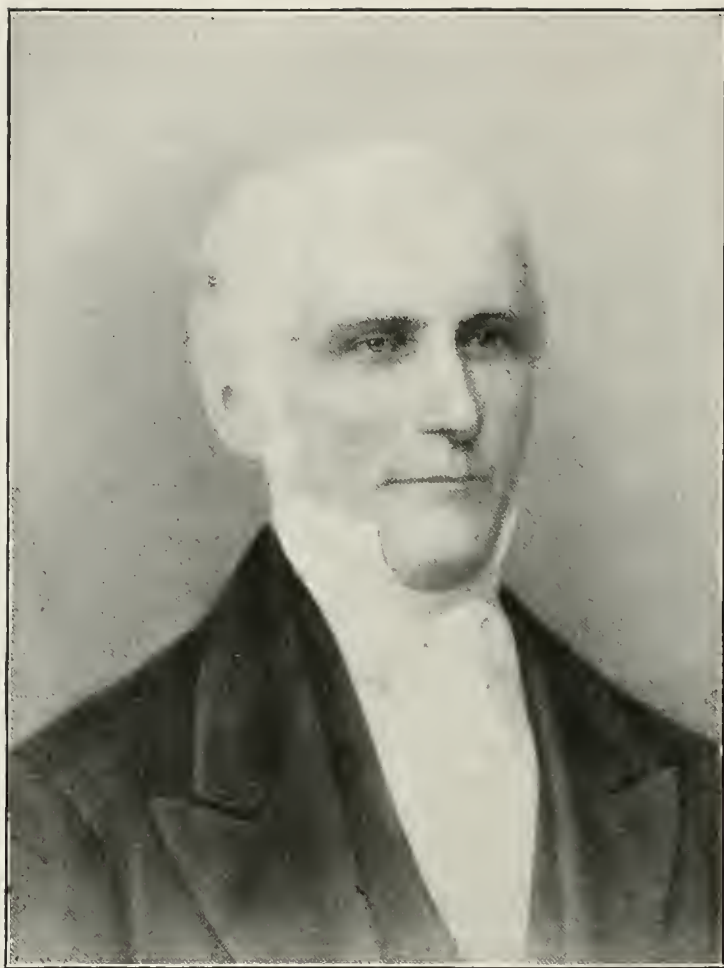
Daniel Neall was born in Kent County, Del., January 25, 1784. His parents, Jonathan and Sarah Neall, were members of the Society of Friends, and owned and cultivated the farm upon which he first saw the light. His father dying when Daniel was but three years old and leaving his mother with the care of a very numerous family, Daniel's chances for an education were meagre. While denied the privilege of an ordinary common school education, he in later life, by self-instruction, succeeded in largely overcoming his early lack of opportunities.

At a very early age he gave evidence of great mechanical ingenuity. When a boy of twelve he carried a watch of an older brother into the cornfield and, taking apart its machinery, was successful in putting it together again so skillfully as to escape detection.

Having little taste for agriculture, he was apprenticed to an older brother to learn the trade of a house carpenter. At the expiration of his apprenticeship, he left this line of work to engage in that of a carriage-maker in Milford, Del., first as a journeyman and then as a partner in the business. This occupation offered him many opportunities for indulging his inventive ingenuity, and he obtained from the United States, over the signature of President Madison, a patent for a concealed joint and elbow for the raising and lowering of the tops of gigs, etc. At this time he was also a frequent and observing visitor at the shop of the local clock-and-watch-maker, upon whose decease Mr. Neall purchased the stock and tools and succeeded to the business.

During his residence at Milford he was often called upon to perform simple dental operations, principally the extracting of teeth for his fellow-villagers, the physician of the place often referring his patients to him and ultimately bequeathing to Mr. Neall his entire collection of instruments.

In the winter of 1813-14 Mr. Neall moved with his family to Bucks County, Pa., where he purchased a farm of one hundred acres or so and settled down to the cultivation of the soil. His active ingenious mind, however, could not content itself with this occupation and he soon erected near his



Daniel Neall

dwelling a little shop where during his leisure hours he would retreat to clean a watch, repair a clock, or forge some article of silverware, either for himself or his neighbors. The evidences of his skill in this and other lines may still occasionally be met with in the possession of his descendants and of the descendants of his neighbors, and are valued by them as cherished possessions.

What led him to observe the imperfection in the printing machinery of the day and to set about the invention of a new and superior appliance is not known, but it is a fact that Mr. Neall made an important improvement in the form of a vertical horse-power printing-press, which, had he been as anxious to make money as he was interested in the invention for its own sake, would probably have been the means of amassing for him considerable wealth. As it turned out, he realized nothing from the invention, which, however, proved to be a pioneer along new lines in which other inventors made successes. For this invention the Franklin Institute at Philadelphia awarded him a gold medal.

It was about the year 1828 when he began to turn his attention zealously to dentistry as a vocation. It was a characteristic of Mr. Neall's mind, in whatever occupation he was engaged, to endeavor to improve upon existing methods; hence it was not long before he had something new for his local world in the line of dentistry, namely, porcelain teeth. He secured his clay and glass for the manufacture of these from a Mr. Thomas Tucker, residing near the banks of the Schuylkill, who was then making china in imitation of the English and French. There are persons living now who have seen specimens of Neall's workmanship of that early day, and though the thickness of the plates and the "carving" may seem clumsy when compared with the artistic products of the twentieth century, it is interesting to note that the structure stuck together and stood the test of wear. From that time until 1845, Dr. Neall was assiduously and devotedly engaged in the practice of his profession. He was a diligent reader of Fox, Fitch, Bell, etc., and a firm believer in the benefit of scientific investigation.

His inventive spirit was constantly inciting him to trial of various modifications and improvements for the benefit of his patients. Among the improvements made was the introduction of a temporary set to be worn during the necessary absorption of the gums after the extraction of teeth. His son, Dr. Daniel Neall, has said of him, "I believe him to be the originator of this improvement, and also that for many years he received few thanks at the hands of the profession for it. This may have resulted from the fact that he was not sufficiently mindful of 'No. 1' to add a farthing to the figure charged for

the two sets, temporary and permanent, over that asked in full payment for one, his first question and his last being, 'What will benefit the patient?'"

About 1832 he constructed entire dentures upon porcelain base, as it is now called. The melting and refining of gold,—indeed, all of the work that pertained to the goldsmith,—as well as the necessary details of the porcelain or plastic department, received his individual care, took the tone and impress of his inventiveness, and was all accomplished in his laboratory under his own roof. The idea of extracting a defective tooth, filling it, and setting it back in place in the jaw was another improvement in dental methods that suggested itself to the fertile mind of Dr. Neall, and he experimented in this line with several of his patients. His daughter, still living, was thus operated upon by him, and she testifies that the replaced tooth did service for many years afterwards. He invented an articulator which was on sale in Philadelphia in 1838. Account of this is given in "*The American Journal of Dental Science*," (new series, Vol. II, April, 1850, page 409). Dr. Neall was a friend and adviser of Elisha Townsend, who gave him credit for many helpful attentions.

Dr. Neall was thrice married, and was survived by two children, Dr. Daniel Neall, a talented dentist of Philadelphia, who died in 1894, and Elizabeth Johns Neall-Gay. He was an uncle of Dr. Elijah M. Neall, who was especially noted for his beautiful porcelain block carving. He was contemporary with Drs. Wildman and McIlheny. These three were masters in porcelain dental art of their day. Elijah was the father of E. H. Neall and the grandfather of Dr. Walter H. Neall, now practicing in Philadelphia. Daniel Neall, Sr., died April 15, 1846, at Philadelphia, and was buried in the Friends burial-ground, Fair Hill, Philadelphia.

No account of Daniel Neall, Sr., is complete without reference to his services to humanity in a far different sphere from that of dentistry. Born in a slave-holding community, his interest was early awakened to efforts for the amelioration of the lot of the colored people, for whose betterment he labored assiduously until the time of his death. In his day there was no more unpopular avocation in America than that of befriending the slave, but Dr. Neall endured patiently all the suffering and hardship that the espousal of the unpopular cause brought.

He was one of the originators and prominent in the management of the building known as "Pennsylvania Hall," erected in Philadelphia and dedicated to freedom of speech. The hall, located on Sixth Street, between Race and Arch, was dedicated May 14, 1837. David Paul Brown, a lawyer who was not strongly abolition, delivered the address. The building was destroyed,

May 14, 1837, by an infuriated mob of anti-abolitionists, who set it on fire. This was a dramatic incident in the history of the anti-slavery movement in the United States. The hall was not rebuilt. The lot was sold to the Independent Order of Odd Fellows, who erected a building which was a reproduction of the hall and used by that order until the Odd Fellows Temple was erected on Broad Street, above Arch.

Of the Pennsylvania Hall Association Dr. Neall was the first president, filling the position uninterruptedly until within a few months of his death. Before his relinquishment of the office, his son, Dr. Daniel Neall, Jr., was appointed secretary, and served until the disbanding of the association in 1883—the family being thus directly represented in the government of the association from start to finish.

In the children of the colored race he had a special interest, and strove to secure for them a free road to respectability and independence by seeking the removal of obstacles to their acquiring education and trades. William Lloyd Garrison and other prominent abolitionists were his friends, and with them he was connected with the "Underground Railroad."

No better description of his life, character, and aims could be recorded than the following tribute written and dedicated to his memory by the poet, John G. Whittier, his friend and fellow-worker in the anti-slavery cause:

I.

"Friend of the Slave, and yet the friend of all;
Lover of peace, yet ever foremost, when
The need of battling Freedom called for men
To plant the banner on the outer wall;
Gentle and kindly, ever at distress
Melted to more than woman's tenderness,
Yet firm and steadfast, at his duty's post
Fronting the violence of a maddened host,
Like some gray rock from which the waves are tossed;
Knowing his deeds of love, men questioned not
The faith of one whose walk and word were right,
Who tranquilly in life's great task-field wrought,
And side by side with evil, scarcely caught
A stain upon his pilgrim garb of white;
Prompt to redress another's wrong, his own
Leaving to Time and Truth and Patience alone.

II.

“Such was our friend. Formed on the good old plan,
A true and brave and downright honest man!
He blew no trumpet in the market-place,
Nor in the church with hypocritic face
Supplied with cant the lack of Christian grace;
Loathing pretence, he did with cheerful will
What others talked of while their hands were still;
And, while ‘Lord! Lord!’ the pious tyrants cried,
Who, in the poor, their Master crucified,
His daily prayer, far better understood
In acts than words, was simply Doing Good.
So calm, so constant was his rectitude,
That, by his loss alone we know its worth,
And feel how true a man has walked with us on earth.”

The principal facts contained in this sketch of the life of Daniel Neall, Sr., were obtained from his grandson, Mr. Frank L. Neall, of Philadelphia.

JOHN ALLEN, M. D., D. D. S.

PERFECTOR OF PORCELAIN DENTAL ART.

John Allen, son of Dr. Niram Allen, a practicing physician, for many years, at Cincinnati, was born November 4, 1810, on his father's farm in Broome county, N. Y. He was a descendant of General Ethan Allen of Vermont, famous in the annals of the Revolutionary War.

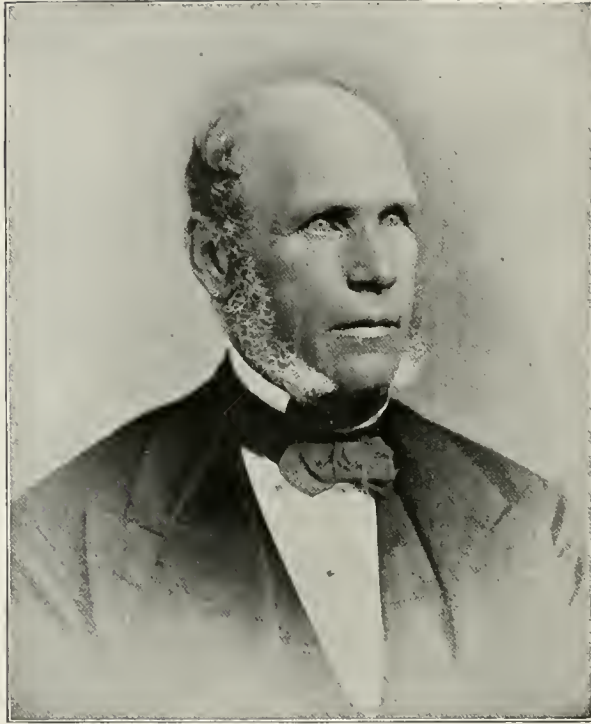
When John was a boy his father emigrated to Ohio, which was then regarded as "The Far West." Several years were spent here by young Allen in agricultural pursuits, until at the age of nineteen his attention was diverted to dentistry and he became the student of Dr. John Harris, of Chillicothe, who has to his credit the honor of being the preceptor to several of our foremost pioneers, such as Chapin A. Harris, James Taylor and others whose influence in dentistry has been widespread.

After a pupilage of one year with Dr. Harris he moved to Cincinnati, Ohio, in 1830, where he began his professional career, and at the Ohio Medical College of that city took a course of lectures and was granted the degree of Doctor of Medicine. While attending the college he prosecuted his studies on the characteristics and anatomy of the human teeth and face.

Dr. Allen early evidenced a liking for prosthetic dentistry, and his contributions to this will ever be remembered as his most enduring work. He sought and obtained a practical knowledge of the manufacture of mineral teeth. In order to overcome the defects of appearance and lack of strength and the stiff, mechanical look of dentures made from single and block teeth, he instituted experiments with the view of overcoming these defects and improving the system of prosthetic work.

An important step was an effort to test the practicability of raising the sunken portion of the face where original form and expression were destroyed or changed by loss of the teeth and consequent absorption of the alveolar processes. His first notable contribution was presented at a meeting of the American Society of Dental Surgeons held at New York, August 5 to 9, 1845, when he read an essay, and exhibited apparatus for restoring the shape of the face when lost from any cause.¹

¹ "American Journal of Dental Science," Vol. VI., September, 1845, page 79. Also "Dental Cosmos," Vol. VII., May, 1866, page 527.



John Allen, M. D , D, D. S.

Dr. Allen had made a close study of the bony and muscular framework concerned in expression. He found that at four points the loss of tissue following the loss of the teeth required more support than was practical to provide when the natural teeth were replaced by artificial ones by the teeth alone. If the teeth were placed in the best position for restoration of expression they would be useless for mastication. To remedy this he used the well known "plumpers." The members of the society were so favorably impressed by this novel idea, and with its usefulness, that on motion it was resolved: "That Dr. Allen's improvement be regarded as important, and that a medal be presented him, also five volumes of the journal, bound and subscribed by the recording secretary, as awarded by the society for said improvement." This idea had no connection with his later continuous gums. The idea was covered by a patent "For Restoring the Contour of the Face," dated December 16, 1845.¹

His claim reads: "I claim the manner of restoring hollow cheeks, by means of metallic bulbs, constructed in the manner set forth, or by any other substance, between the jaw-bone and the cheek."

At a meeting of the society in 1847, a vote of censure was passed upon Dr. Allen for having procured a patent after having freely offered the benefits of the invention to any member of the society, and afterwards demanding a percentage for using it.

A little later he began experiments which culminated in his invention of the well-known continuous gum. About this time much activity was manifested in improving porcelain artificial teeth. The imitation of the gums had always been a stumbling block. The single gum teeth of this period were in this respect very defective. The color was rarely satisfactory, and the shape did not permit much artistic work. Block teeth were hand carved, and while many were rudely done, the work of experts of that time had not been excelled. They were generally riveted to the plate, the rivets passing perpendicularly through the teeth, sometimes riveted at both ends, and at other times one end was soldered to the plate. Very few were backed and soldered. Numerous attempts had previously been made to construct the teeth and plate of one piece of porcelain, but they had not proved practicable. Dr. Allen conceived the idea of using teeth without gums, and forming the gums and uniting the teeth to the plate in one operation. The plate he made of platinum, or pure gold alloyed with platinum, so as to raise the fusing point of

¹ "American Journal of Dental Science," Vol. II., April, 1852, page 409.

the plate and permit of the porcelain being baked upon it. The patent for this was granted December 23, 1851. (Class 20, No. 8621.) It contains three claims. 1st. "Mode of setting mineral teeth on a metallic plate." 2d. "A fusible silicious cement which forms the gums." 3rd. "The combination of asbestos and plaster of Paris for investing." It was not at first attempted to cover the entire lingual surface of the plate with the gum. In the earlier work the gum in porcelain was depended upon to hold the teeth to the plate, the teeth being held in position by the investment. First soldering the teeth to the plate before applying the fusible porcelain was an afterthought, as was also covering the entire lingual surface; both were valuable improvements, and made the work much more practical. Dr. Allen soon found in a fellow townsman a sturdy contestant for the honors and the profits of this invention. Dr. William M. Hunter, a demonstrator of mechanical dentistry in the Ohio College of Dental Surgery, Cincinnati, was also experimenting in the same line, and contended that he had anticipated Dr. Allen, and proceeded to use what he thought was his own idea, and was soon met with a suit for infringement. Without passing upon the merits of the controversy, it is sufficient to say that in the end Dr. Allen's right as the originator of this new idea was fully accorded by all concerned. In the meantime, however, for a few years was waged a hot and furious legal and journalistic contest. They were both very stubborn men, both felt that they were right, and both used in their various communications to the journals language of which they were no doubt later ashamed. It was the first contest over a patent in which the profession was interested, although it was not of general interest.

Dr. Allen was a well-formed man, tall, of commanding presence, tenacious of his own ideas, yet ready to hear and accept those of others. In porcelain work he was the chief advocate, not only in this country, but in the world wherever dental prosthetics were known and practiced. He also was interested and took active part on various lines of thought and effort to develop and elevate the profession. Appreciation of his contributions to dental prosthesis was manifested by the award of medals from many American societies and institutes. Also from the World's Expositions at Paris in 1867 and 1878, at Vienna in 1873, and at the Philadelphia Centennial, 1876.

In the subject of dental education he always manifested a warm interest. A writer of more than ordinary ability, he added many valuable contributions to the literature of the profession. Among his contributions were:

Contour of the Face; Physical History of Various Nations of the Earth with Special Reference to Their Teeth; Dental Chemistry; Continuous Gum

Work; Professional Jealousy; Dentistry; Artificial Dentures; Artificial Gums; Destroying Nerves; Restored Expression of the Face; Causes which Retard Dental Progress. He wrote largely upon building the dental tissues with use of the phosphates contained in the whole wheat flour. "Brown bread versus white bread," was his fad.

Dr. Allen, with James Taylor, Jesse Cook and M. Rogers, were the organizers and founders of the Ohio College of Dental Surgery, established in Cincinnati, 1845. He was appointed a Professor of Operative and Mechanical Dentistry, which chair he resigned on his removal to New York City in 1854, in order to more conveniently prosecute his experiments in porcelain art. Upon his locating in New York he became interested in the establishment of the New York College of Dentistry, of which he was Professor of Clinical Mechanical Dentistry, and remained a member of the Board of Trustees up to the time of his death. Dr. John Allen was elected a member of the American Society of Dental Surgeons at its second annual meeting, 1841, and promptly took an active part in its proceedings. His activity in the National Societies continued until his death. He was elected president in 1861 of the American Dental Convention. It was mainly through the efforts of Dr. Allen and Dr. John G. Ambler that this convention was continued after the formation of the American Dental Association, of which he was also a member. He was a member of the Mississippi Valley Society of Dental Surgeons and the Association of the Ohio College of Dental Surgery. In each he held several important offices of honor and trust, and was one of the delegates to and organizers of the Dental Society of the State of New York, 1868, and a member of other dental societies. The Baltimore College of Dental Surgery conferred the honorary degree of Doctor of Dental Surgery on him in 1845.

Following the unsuccessful experiments of Delabarre, Desirabode, DeLoude, Balsan, Andibran, Lefoulon and others, by his long and untiring efforts he gave the first practical formula for continuous gum body and cleared away many difficulties incident to porcelain work, and to-day is a recognized authority of the highest art in one of our most important specialties, of which he did the most, of all early experimenters, to perfect.

Dr. Allen was married twice: first, to Miss Charlotte Dana, of Waterford, Ohio, in 1835, who died, and to Mrs. Cornelia Reeder, of Cincinnati, Ohio, 1846. One son by his first wife, Dr. Charles Dana Allen, of New York City, and one daughter, Mary E., wife of C. Volney King, by his second wife, survive him. He died at Plainfield, N. J., March 8, 1902, from general debility,

in his eighty-second year, and his remains repose in Greenwood Cemetery, Brooklyn.

The facts contained in this sketch were obtained from:

“The Dental Cosmos,” Vol. XXXIV., May, 1892, p. 408.

“International Dental Journal,” Vol. XIII., April, 1892, p. 309-11; Vol. XIII., Nov., 1892, p. 844-5.

“Amer. Journal Dental Science,” Vol. II., new series, April, 1852, p. 4411; Vol. II., new series, Sept., 1841, p 136.

“New York Dental Recorder,” Vols. V. and VI., 1851-53.

“Dental News Letter,” 1851-53.

“Dental Register of the West,” 1851-53.

Dr. H. A. Smith, Cincinnati, Ohio, and Dr. Allen's only son, Dr. Charles Dana Allen, New York City.

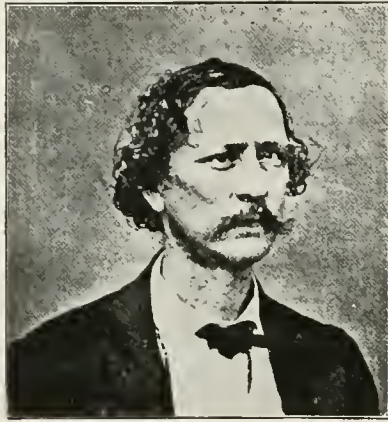
WILLIAM M. HUNTER, D. D. S.

EARLY EXPERIMENTER IN CONTINUOUS GUM WORK AND EXPERT METALLURGIST.

The subject of this sketch was the son of Samuel and Martha Hunter, the former a native of Philadelphia, the latter born in Baltimore, their son, William M., was a Christmas gift, born December 25, 1819, in Louisville. In early life he moved with his parents to Philadelphia, where he spent both his boyhood and early manhood.

He studied dentistry with Dr. Elijah M. Neall, who was noted for his ability as an artistic carver of porcelain teeth. Young Hunter himself possessing marked mechanical ability, and under the tutorship of Dr. Neall soon acquired much skill as a tooth carver and prosthetic workman and became much interested in the ceramic art.

1842 he removed to Cincinnati and began experimenting in developing a formulae for so called continuous gum work. His experiments antedated those of Dr. John Allen who also worked along the same line and in 1851 first took out a patent on this method and formulae. Immediately following this, Dr. Hunter published his method and formulae, giving it gratuitously to the profession in the dental journals. Following this he was sued by Dr. Allen for infringement of his patent and at the trial which occurred in 1854 it was shown that Hunter and Allen began experiments about the same time with the same object in view, but at first on widely differing lines; they reached about the same results by very much the same means in the end. Hunter was exonerated from the infringement charge only one case was proved against him, and as he made no charge for that, the court decided that Allen was not damaged. Both Allen and Hunter sold formula with instructions for making the new plate, but there was no law against that, a suit for infringement lay against those who produced the finished product, and those only. The Allen patent was sustained. It ended, however, a very bitter controversy; they later "buried the hatchet," and became reconciled. June, 1855, Dr. Hunter published a card stating that the controversy was ended, and that he conceded to Dr. Allen any advantages he or the public may find



Wm. M. Hunter.

in any ideas that have been regarded as peculiarly his own. He acted throughout as an honorable professional gentleman. Among the witnesses at the trial were Dr. S. S. Fitch (the writer of a system of dentistry), E. Slack and Prof. Silliman, distinguished chemists; Drs. James Robinson and Jobson, distinguished dental writers of London, and many distinguished dentists of this country.

(See "American Journal of Dental Science," N. S.—N. Vol. V, July, 1855, page 492.)

The Allen patent was for uniting the teeth to the plate by a silicious compound, no backing being called for. Hunter used a backing, this was a point in his favor, and had much to do with the final collapse of the Allen patent.

During the meeting of the Mississippi Valley Association of Dental Surgeons, 1853, were also heard the views of Drs. Allen and Hunter in contention concerning their continuous gum patents; the following resolution being adopted at that time: "That it is and always has been the sentiment of this Association that it is derogatory to the professional character of any of its members to patent any dental instrument or mode of practice."

Hunter revived an old European idea for retaining partial plates by a tube soldered to the plate, in which was inserted a piece of compressed wood pressing against the natural teeth. ("American Journal of Dental Science," Vol. IV, October, 1853.) It was never used to any great extent, and has long been obsolete.

Dr. Hunter made the first radical improvement in an amalgam that was a real tooth saver. Prior to this tooth filling amalgam generally consisted of a ten cent piece filed and mixed with mercury. Hunter's formula was "*four parts pure silver, five parts pure tin*" and first given to the profession in an article "On the Use of Amalgam for Filling Teeth" which he wrote for Dr. Elisha Townsend of Philadelphia, who thought so well of the alloy he published it in the "Dental News Letter" (Vol. IX, October, 1855, page 35).

Dr. Townsend was an ardent all gold advocate and much opposed to the use of amalgam, but Hunter's formula appealed to him and he recommended it guardedly. This formula was put on the market, and sold as "*Townsend's Amalgam*," although Townsend always gave Dr. Hunter credit for originating it. Whether he invented the amalgam formula is uncertain.

Dr. Buckingham of Philadelphia who knew him intimately says in the "Dental Cosmos" (Vol. XXII, page 361, July, 1880), he obtained it from England, which is probable, as various alloys were in use there as early as 1840-42. Hunter was in correspondence with various English dentists in reference to

sponge gold, and also continuous gum, and it is likely that it came that way. There is no question, however, but that it was made known to the profession in this country through him. When the American Association of Dental Surgeons met at Cincinnati 1854, he invited a number of the members to visit his office and see some of the fillings made of it, which, on inspection by the members were pronounced by them superior to anything in the way of amalgam they had seen. He explained to them how it was made and how it was used. That is the first record of alloy containing tin for this country. Prior to that, tin, zinc, platinum and antimony had been used in England, also copper amalgam. On this side coin silver fillings and precipitated silver were in use.

Dr. Hunter so impressed the profession with his skill and investigative ability that his views were highly respected.

The Pennsylvania College of Dental Surgery conferred the honorary degree of D. D. S. upon him during the early fifties. He was a charter member of the American Dental Convention organized at Philadelphia, August, 1855.

Dr. Hunter was an ardent and an enthusiastic society attendant and a charter member of the Mississippi Valley Association of Dental Surgeons. Before it he read several papers of merit. Amongst his writings were papers on "A New Method of Supplying Artificial Teeth and Gums" ("Dental News Letter," Vol. VI, September, 1852, page 40), "Continuous Gum Work," "Disease of the Gums," "Irregularity of Teeth," etc.

Dr. Hunter was one of the first demonstrators at the Ohio College of Dental Surgery organized at Cincinnati in 1845, and later occupied the chair of Professor of Dental Prosthesis.

Dr. Hunter practiced all his professional life in Cincinnati except during 1864 to 1867 when he was in New York City practicing and demonstrating his method of continuous gum work. He was married in 1844 to Miss Caroline Ashton of Philadelphia. To them were born four children. Of them only one survives, i. e.: Dr. Frank A. Hunter, a well known dental practitioner of Cincinnati.

Dr. William M. Hunter died November 26, 1889, and was buried in Spring Grove Cemetery at Cincinnati. He was of a gentle nature and highly respected for his skill and contributions so freely given to his profession.

WILLIAM HENRY ATKINSON, A. M., M. D., D. D. S.

LEADER, "TEACHER OF TEACHERS," PROPHET, AND PAST GRAND MASTER DENTAL
ENTHUSIAST.

"The flash of wit, the bright intelligence,
The beam of song, the blaze of eloquence,
Set with their sun, but they left behind
The product of an immortal mind."

In Newton, Bucks County, Pa., January 23, 1815, William Henry Atkinson was born. His parents were David Atkinson, an Englishman, and Mary Margerum Atkinson, a native of Holland. David, the father, was a frontier Methodist preacher, and Mary, his mother, a Quakeress, who was noted as a faithful parent and strict disciplinarian to her children, as well as a doctress and good angel of mercy to the sick and distressed of the neighborhood.

Young William spent his boyhood days in his native village, which was destitute of those advantages of culture even for the ordinary education generally supposed essential to a literary or professional career, except that of the public school which he attended during the winters. At an early age he was apprenticed to a tailor, filling in his spare time working on the farm. About this time his parents moved to Mercer County, then in the wilds of Western Pennsylvania, where they purchased a farm of one hundred acres, on which they lived in a log cabin in a sparsely settled neighborhood, where young Atkinson worked at intervals at his trade and as a farm-hand until he reached manhood.

He early exhibited a desire to investigate scientific problems, and by perseverance and force of intellect only, while a boy, acquired an education that made for himself a name well known throughout the dental profession.

In 1840, at the age of twenty-five, spurred with an ambition to become a physician, he went to Meadville, Pa., where he entered the office, as a student, of Dr. William Woodruff, whose daughter, Martha C., he afterwards married.

Desiring to further equip himself in his science, he attended a course of medical lectures at Willoughby University, Willoughby, Ohio, from which he



W. H. Atkinson

graduated as an M. D. in 1847, his thesis on that occasion being an able effort on "Sleep."

He began the practice of medicine and surgery at Meadville in partnership with his preceptor, and later he located at Norwalk, Ohio, where he continued his practice and investigations and made a reputation for himself as an expert in obstetrics.

Returning to Norwalk, a traveling dentist called his attention to dentistry, in which he became interested. He saw in it a wide field and concluded to adopt it as a calling. Desiring a larger field of operation, he removed to Cleveland, Ohio, in 1853 and formed a partnership with Dr. Frank S. Slawson. Dr. Charles R. Butler, of Cleveland, soon after entered the office of Dr. Atkinson, and was his first student and subsequently his partner, until Dr. Atkinson removed to New York City.

While located at Cleveland Dr. Atkinson became an ardent student of microscopy and the natural sciences. His researches along this line and in the new fields of dental therapeutics, pathology, and histology, in which he was a profound student and industrious investigator, soon gave him prominence and eminence in the profession. He was an excellent operator and an expert in all departments of his profession, and soon acquired a lucrative practice among the best people of Cleveland. In 1855 he was the first in Cleveland to advocate and to claim a higher standard of fees for dental operations and place his services on the time basis. He had a conception that his professional services had a quality not to be estimated in money.

In 1859 the Ohio College of Dental Surgery conferred on him the honorary degree of Doctor of Dental Surgery. Wishing a wider field and greater opportunity for his talents, in 1861 he removed to New York, where he was engaged to manage the S. S. White Dental Depot. This he did for one year, when, at the age of forty-seven years, he opened an office in the house of Dr. William H. Allen, 18 West Eleventh Street. Here he remained until the golden opportunity of his life came, when, through the firm friendship and liberality of Dr. S. S. White, he was enabled to establish a home at 41 East Ninth Street and given an opportunity to practice his "pet hobbies" to his heart's content. Here he lived and died.

His home was emphatically an "open house" and the rallying point in New York for the profession from all over the world and, unwisely, his unbounded hospitality was never limited to his income. He opened wide the doors of his operating-room and laboratory to his confreres and made them not only welcome to his teachings and demonstrations, but also to the hospitality of his

home. For twenty years his income was large and his charges for his services to the wealthy were fabulous, yet he did so much for charity and spent so much of his time traveling about the country to dental meetings that he died poor.

Dentistry at the time he began to teach was a semi-secret art, and he was noted for the fact that he was one of the first to give free teaching as a clinician before an open society meeting. To him also we are indebted for a better professional nomenclature. He attempted to introduce "Volapuk" into dental terminology, but with no success.

He was instrumental in organizing the New York College of Dentistry, in which for a short time he was professor of the Institutes of Medicine. Dr. Atkinson had a number of students, all of whom have proved a credit to his efforts and to the profession.

He took each student on an apprenticeship of three years. Among them were his sons, Charles B. and William F., George Viall, Thomas Rowe, Charles R. Butler, Royal W. Varney, George S. Allen, George A. Wilson, and Dr. Rodrigues, of Cuba.

Dr. Atkinson was a most ingenious man. To him several important methods are credited. He earnestly advocated the treatment of chronic alveolar abscess, involving necrosed bone condition, with sulphuric acid—this treatment led to the "Callahan method" of treating root-canals with sulphuric acid. He also gave treatment for the hard and soft tissues of the mouth to restore them to healthfulness, and showed actual cases where reproduction of bone had taken place under his treatment.

In 1856 Atkinson also reintroduced and practised using the mallet to condense gold-foil in fillings, and possibly may have been the first to use mallet force from start to finish; however, he stated at the meeting of the American Dental Association at Boston, 1866, that his first knowledge of the use of the mallet was obtained from Dr. D. E. Merrit, of Pittsburg, Pa., who employed it in condensing the surfaces of his non-cohesive gold fillings in 1838. Leonard Koecker, of Philadelphia, and many others also used the mallet for the same purpose at an early date. Dr. Atkinson's original mallet was made of hickory and was about one and one-half inches in diameter, the handle three inches long. He also designed new forms of instruments for using cohesive gold, with which he built wonderful contours. "As poets spend days over a line, as Stradivarius spent days over a tiny block to go into a violin, as great architects of the past lavish exquisite work on hidden nooks, so did Dr. Atkinson expend thought and labor on the inner surfaces, outer angles, edges, walls,

and contour formations of natural teeth that they might be preserved from the ravages of decay and restored to pristine beauty—who can estimate a cartoon by Raphael or an operation by Atkinson? Both were consummate artists.”

Dr. Atkinson was connected as an active or honorary member with almost every important dental society in the United States from Maine to California, and was more widely known throughout the country than any other prominent dentist. He was the president of the American Dental Association at its first regular meeting, held at Washington, D. C., July, 1860.

He formed and was the president of the First District Dental Society of New York, to which he devoted much of his time. He was a member of the American Microscopical Society and the Odontological Society of Pennsylvania. In 1881 Dr. Atkinson attended the International Medical Congress at London; he also visited Germany and France, where he was the recipient of much attention.

Dr. Atkinson was a prolific writer and frequent contributor to periodical dental literature, writing many important essays of authoritative and standard doctrines. Among them were *Treatises on Implantation; Diagnosis; Plates over Fangs; Dental Teachings; Temperaments; The Use of the Drill in Dentistry; Physiology of the Blood; Difficult Cavities; Alveolar Abscess; Decalcified Teeth; Necrosis of the Alveolar Process and Treatment; Glasses in Dental Operations; Labor; Diseases of the Antrum; Bleaching the Teeth; Dental Therapeutical Agents; Sensitive Dentin; Artificial Dentures; Filling Deciduous Teeth; Histology of the Dentin; Hypertrophy of Roots; Caries; Dental Tissues; Tumors and Abscesses; The Relation of General to Special Practice; Adenoid Growths, and The Action of Creosote*. Among his best contributions were his researches on *Histology and Microscopy; Necrosis; Inflammation; Ripening and Ripeness, and The Origin of Pus*.

The establishment of a school of microscopy in New York, under the management of Prof. Carl Heitzman, was the offspring of Dr. Atkinson's persistent energy and perseverance and accomplished much good.

May 17, 1840, Dr. Atkinson was married to Miss Martha G. Woodruff, the daughter of his preceptor, at Meadville, Pa. To them were born Clinton, who practised medicine in New York City until his death; Charles B. and William F., both dentists; Delia A. who married Dr. George Viall, of New York, later of Pasadena, Cal.; Emma L., who married Dr. Thomas Rowe, of Cobourg, Canada, and Frank I., who married Dr. John M. Crowell, of

New York City: Willita, now Mrs. J. T. Martindale, Trenton, N. J., and Mary.

Dr. Atkinson's last days were filled with sorrow; his favorite son, Clinton B. Atkinson, M. D., his chief assistant in the practice of oral surgery, a graduate in 1869 of the College of Physicians and Surgeons of New York, died May 31, 1890: this, coupled with the death of his wife, did much to bring sorrow to Dr. Atkinson's last days. William F. Atkinson, D. D. S., his other son, who graduated at the New York College of Dentistry, 1883, died March 30, 1891, three days previous to his father, who, in the seventy-seventh year of his age, died of pneumonia at New York City, April 2, 1891. He was buried in Woodlawn Cemetery.

Dr. Atkinson was a man of great energy and enthusiasm and led an active life, laboring in season and out of season for the good of the profession. He was highly regarded for his wisdom, and in recognition of his readiness to impart instruction and foster the interests of his profession was affectionately called "Father" or "Pop" Atkinson. In the meetings when any one referred to "the grand old man" it was taken for granted that the reference was to Atkinson.

Dr. Charles R. Butler, his former student and professional associate, says of him:

"I was so long and intimately associated with Dr. Atkinson that I had come to love and admire his nobler qualities to the exclusion of his egregious inconsistencies. Through his marvelous enthusiasm he stimulated others to see and attempt to do far beyond anything that they had conceived of before. He was a great teacher and prolific theorist.

"I was in his family as one of his children for years, and have often said that his generosity was so unqualified that he would tear his last shirt in half to give to a mendicant that came along with a poor story. He had none of the financier in his make-up. If he had saved ten per cent. of the money that actually came into his hands he would not have died a poor man. It brings inexpressible sadness to think that a man that had struggled to such ability and acquired such a world-wide reputation should come to the end that he did.

"He had a superabundance of impulse, great command of language, and could say the severest things that I ever heard, and then the most generous and lovely things imaginable."

He was eccentric, progressive, and aggressive; sometimes erratic, yet of a peculiar genial, loving, and impulsive nature: his hearty manner and speech

always won him the kind regard and respect of his fellows. Of magnetic presence, forceful intellect, and marked individuality, he was in demand at dental meetings, and always talked fluently whatever was the subject of discussion.

Dr. Atkinson was a Spiritualist, and possessed a most inexhaustible vocabulary. His brilliant flights of oratory he said were inspired by "the angels," in whom he implicitly believed. Some of his utterances were considered as the veriest vagaries, but since have proven the highest truth, far in advance of his age.

No words of mine will half do justice to this great man, who was an inspiration and incentive to many to accomplish better things in this life.

"He was a man, take him all in all,
We shall not look upon his like again."

The facts contained in this sketch were obtained from Dr. Atkinson's daughters, Mrs. George Viall, Pasadena, Cal., and Mrs. J. T. Martindale, Trenton, N. J.; Dr. Chas. R. Butler, Cleveland, Ohio; *Dental Cosmos*, Vol. XXXIII., May, 1891, pages 411, 412; *International Dental Journal*, Vol. XII., June, 1891, pages 417-419; *Dental Review*, Vol. V., October, 1891, page 811.

JOHN FOSTER BREWSTER FLAGG, M. D., D. D. S.

EXPOSER OF THE SO-CALLED "COMPOUND LETHÉON."

J. F. B. Flagg, son of Dr. Josiah Flagg, the pioneer Boston dentist, and Eliza Brewster, a direct descendant from "Elder Wm. Brewster of the Mayflower 1620," was born in Boston, May 12, 1804, and died at West Chester, Pa., September 8, 1872.

At a suitable age he enlisted as a student of dentistry under the tutorage of his brother, Dr. Josiah Foster Flagg, of Boston, and, becoming qualified, entered upon the practice of his chosen profession at Providence, R. I., in 1826. During the following year he married Mary Waterman Jackson, a daughter of the Hon. Richard Jackson, a prominent citizen of the latter place, and, in conjunction with the duties of practice, found time to manifest and assert his approval of the movement for the extension of the right of suffrage, and as an advocate of this effort, was elected a member of the Assembly, under Governor Dorr.

He removed to Philadelphia in 1842, and, being almost a total stranger, had serious obstacles to encounter in establishing himself in practice, but, with the indomitable energy so characteristically his, he acquired the status of a recognized and eminent practitioner of his specialty.

He was an expert in chemistry, and was one of the first dentists to identify himself with anaesthesia and particularly prominent as having announced to the dental and medical world that the so-called "Compound Lethéon" of Dr. William T. G. Morton of Boston, was simply washed sulphuric ether and not controllable by patents, thus securing for these professions an unpatentable material. He continued much interested in this anaesthetic, enjoying a large and lucrative practice in its administration in Philadelphia and in 1851 published a work on "Ether and Chloroform—Their Employment in Surgery, Dentistry, Midwifery, Therapeutics, etc.," which remained a standard authority for many years.

In 1849 he invented the *lateral cavity* plate which removed the suction chamber from the palatine arch to the surfaces of the alveolar ridge immediately posterior to the molar teeth, thus doing away with the chamber in



John Foster Brewster Flagg.

the roof of the mouth. He received the honorary degree of D. D. S. from the Philadelphia College of Dental Surgery, February 28, 1853.

He was elected to the chair of Anatomy and Physiology in the Philadelphia Dental College in 1856, and maintained the position as a peculiarly acceptable lecturer until 1858; he, however, never relaxed his interest in the cause of dental education, and at considerable pecuniary loss operated an infirmary for the instruction of students during the summer season; but the plan was relinquished after having failed to command the encouragement to which its merit entitled it.

In consequence of failing sight and health, he retired from practice in 1862, residing, with his second wife, in Burlington, New Jersey, and later at West Chester, Pennsylvania.

As a scientific man, he was remarkably well informed; as a dentist, he was very skillful; while for his personal friends he possessed the power of commanding alike respect for his mental attainments and affection for his social qualities.

He was gratefully remembered by the many who reaped the benefits of his professional skill and kindness, and tenderly regretted by his pupils. He was the father of the late Prof. J. Foster Flagg of Philadelphia.

JOHN SKINNER CLARK, M. D., D. D. S.

A PIONEER OF DENTAL PROGRESS IN THE WEST AND SOUTH.

John Skinner Clark, son of Moses and Melicent Clark, was born on a farm three miles from Brooklyn, Connecticut. His early education was obtained at the district school. As he grew to manhood, disliking farm life, he taught school during the summer months to defray his expenses at a neighboring academy during the winters. After completing his college course, he located at Norwich, Connecticut, where he became a clerk in the hat and fur store of his brother-in-law, Mr. Samuel Nourse, and married Miss Caroline Kinne, March 1, 1837. Immediately following their marriage they started West, locating at Alton, Ill., in 1838, where he also was associated with Mr. Nourse in business. During his residence at Alton, he formed the friendship of Elijah Parish Lovejoy, the Abolition editor, and was one of his main supporters the night Lovejoy was killed by the mob. Immediately after this incident, in 1840, he removed to St. Louis and began the practice of dentistry. Who gave him his early instruction is uncertain; he seemed to have a natural bent for the calling and "made a dentist of himself."

Desiring more scientific knowledge, he attended a course of lectures at McDowell's Medical College and from that institution received the degree of Doctor of Medicine. It was a question with him for a time whether to give up dentistry and become a physician, but he always felt that dentistry should and could be raised to an equal footing with the medical fraternity in the eyes of the world, and this was his ambition. He was a natural surgeon and in his medical studies made a specialty of the mouth and teeth.

Possessing remarkable skill and genius, he soon ranked among the first operators of the time. By invitation of the faculty of the St. Louis Medical College, he delivered a course of lectures on dentistry to the medical students of that institution. He was a close friend of the famous surgeon, Dr. Charles Pope, and often assisted him in difficult operations. He soon became recognized as a progressive thinker and able teacher, and in consideration of his attainments the Ohio College of Dental Surgery conferred on him the honorary degree of Doctor of Dental Surgery in 1852.

August, 1853, he joined the American Society of Dental Surgeons and soon became prominent in it as an able speaker and debator. He presented to the society several practical suggestions along advanced lines, amongst them, in 1858, he advocated the necessity of root-filling, stating that he used barbed broaches in removing dead pulps and for carrying disinfecting agents into pulp canals, thus preparing them in so thorough a manner as to avoid subsequent inflammation or alveolar abscess. This he followed by filling the roots with gold foil made into cylinders, a method taught him by a dentist named Badger.¹

Another method claimed as original with him was the rolling of strips of non-cohesive gold foil on a broach, forming cylinders which were used by the wedging principle of cylinder fillings, so as to make a solid and impervious filling, air tight and moisture proof, as described by him in the "Dental News Letter," Vol. IX, October, 1856, page 6. If not the first who made use of this method, he certainly is entitled to the credit of bringing the method into more general use, and carrying it to a high degree of perfection.

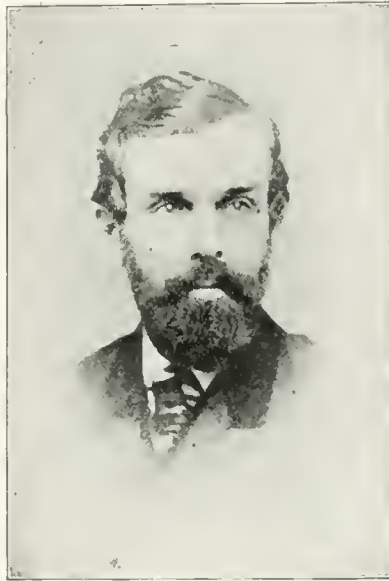
Dr. John S. Clark took part in the meeting held at Philadelphia, August 2, 3 and 4, 1856, at which was organized the American Dental Convention. He was chairman of the committee which reported the plan and articles of association, and served as its first vice-president.

It was at this meeting that he made known his method of using gold for filling teeth. Rolling a strip of gold a little wider than the cavity was deep,

¹ Dr. Jas. S. Knapp says he introduced Dr. John S. Clark to Dr. F. H. Badger, an excellent operator from Columbia, Tenn., during the winter of 1850-51, and the two held a long and interesting conversation. Dr. Badger showed Dr. Clark his method of making and using cylinders. After folding a cut portion of non-cohesive gold foil consisting of four or more thicknesses he again folded the strip with small tweezers, reducing the length of the short strip, and by manipulation causing its form to approach rotundity. Then holding the same in the palm of his left hand, he rolled it back and forth until it was nearly as hard as gold wire, and size of a small knitting needle. If he wanted shorter cylinders than the widths of the strip, he cut them off the roll with strong scissors. Dr. Badger then punched a hole into the imperfect filling or plug, wherever its want of density would permit, and drove into it two or more small cylinders.

A short time elapsed when Dr. Clark illustrated to Drs. Badger, Frederichs and Knapp an improvement by rolling the folded strip of gold on a "cut-off" watch-maker's broach near its handle; furthermore, in contemplation of making the entire plug of gold cylinders of preparing a variety of the latter, some large and soft for first introduction, some small and hard, and some more or less tapering; these latter to be introduced wherever a want of density would allow a hole to be punched to receive it. If too long, they could be filed off along with other portions of gold.

upon a broach, he formed cylinders differing in size. While this method was not entirely original with him, being announced at a time when Dr. Arthur's method of using gold cohesively was attracting attention, and when the profession was seeking new and better methods, its suggestions were widely adopted. His method was a slight variation of the very old "barley-corn"



John H. Clark

pellet method, and its main distinction lay in making the cylinders differ in size and hardness to suit the position they were to occupy in the cavity. His exposition of it at this meeting undoubtedly led many operators to modify their former methods, and by so doing to work with much more satisfaction to themselves and to their patients. It would be a revelation to many of the present day, to see an operator roll up a cylinder containing one, two or three sheets of gold foil, No. 5, as some did for a very large cavity, place it in position, pack around it a few pellets, condense, burnish and polish until it became as if it had been melted and poured in, all this within not more than fifteen or twenty minutes; and perhaps much more of a revelation to see the

same filling in excellent order twenty years later. Nor was this confined to cavities with four strong walls. Large cavities on the proximal surface of incisors, with frail walls, were so filled. It is a misnomer to call these fillings soft gold fillings, or to speak of them as made exclusively with non-cohesive gold. To an expert whether the gold was cohesive or non-cohesive was a matter of little moment. He worked with one as well as with the other.

Dr. Clark was an enthusiastic society worker. He was one of the organizers of the St. Louis Dental Society, December 16, 1856, and elected its second president 1857. He was also one of the organizers of the Missouri State Dental Association and chairman of the meeting of organization, October 31, 1865.

He was a member of the American Dental Association, the Mississippi Valley Society of Dental Surgeons, the American Dental Convention, the American Dental Association, and the New Orleans Academy of Sciences.

In 1849 he had a severe bronchial attack followed by hemorrhages. His physicians informed him his only hope to prolong life was to remove to a southern climate. He turned his St. Louis practice to Dr. C. H. Spaulding, and located at New Orleans in the fall of 1849, to be followed by his family in 1850. Fortune favored him, and he soon obtained a lucrative practice which increased rapidly and continued until the beginning of the Civil War. Previous to his locating in New Orleans, artificial teeth, gold and other dental material were only obtainable at a jeweler's establishment; and seeing the need of a dental depot, he opened one—the first in New Orleans. In 1855 he began publishing "The Dental Obturator," "A quarterly journal devoted to the Science and Art of Dentistry," of which he was proprietor, editor, and publisher for two years.

It was mainly through his untiring effort that the New Orleans Dental College was organized under a charter dated March 1, 1861. Dr. Clark was Dean and Professor of Theory and Practice. Associated with him in this enterprise were Drs. James S. Knapp, George J. Friedrichs, A. F. McLain, and W. S. Chandler. Owing to the turmoil incident to the Civil War, the college was not a success either from an educational or financial standpoint, and ceased to exist until 1867, when under more favorable circumstances Dr. Clark's co-laborers were more successful.

Dr. Clark was well and favorably known as a skilled operator, not only in America but abroad. Dr. Thomas W. Evans of Paris, appreciating his ability, solicited him to become his associate, assuring him a large practice. This Dr. Clark was compelled to decline on account of ill health. At the beginning

of the Civil War, Dr. Clark retired to his summer residence at Magnolia, Miss., where he owned a hotel and a small plantation. Later, owing to strenuous times, he was compelled to abandon his home and with his family become refugees in Columbus, Ga., where he opened an office, soon having all the work he could do. Here he remained until the close of the war, when he returned to New Orleans, broken in health and fortune, only to remain a short while, returning to his old home in St. Louis in 1865, where he resumed practice until his death the following year. In 1855, while warming some wax for an impression in his laboratory in New Orleans, the lamp exploded, igniting his clothing and severely burning him. This accident was the ultimate cause of his death, which occurred at St. Louis, November 29, 1866. He was buried in Bellefontaine Cemetery. He was survived by three daughters, who are living at this date. They are: Mrs. M. C. Mason, and Mrs. James Boardman Cable, Long Beach, Miss., and Mrs. John W. Chandler, Oakland, California. The only son of Dr. and Mrs. Clark, Arthur Loring Clark, was killed in the battle of Shiloh. Dr. Clark was the preceptor of Dr. George F. Friedrichs of New Orleans, who writes me of him: "Personally he was a handsome man of classic features, of gay and cheerful temperament. Open-hearted and benevolent, his hand often lightened his pocket to relieve human suffering. Many a stranded dentist found Clark a friend in need.

"Though fond of sport, he was temperate in his habits, an excellent shot and good billiard player. He was what is generally termed a man born a genius, could turn his hand to write a stanza in a lady's album, a song for a public school celebration, or an article for the morning paper. In mechanics he was just as apt, and proved progressive in his profession, ever ready to aid others in the advancement of its science and art. Such a word as secretiveness, the obliquity of the profession at large at that time, found no resting place in his mind. Willingly would he impart all he knew to his professional confreres, and thankfully receive any new idea appertaining to dentistry."

He was one of the early men of St. Louis, in the class with such shining lights as Edward Hale, Sr., B. B. Brown, Isaiah Forbes, Isaac Comstock, C. W. Spalding, H. E. Peebles, Henry S. Chase, Homer Judd, William N. Morrison, and Henry J. McKellops, who have helped make St. Louis dentistry renowned.

The facts contained in this sketch were obtained from the "Dental Cosmos," Vol. VIII, February, 1866-67 p. 378-9; Hydes' History of St. Louis; Scharf's History of St. Louis City and County, Vol. II, 1883, p. 1568; Dr. Clark's daughters; Dr. James S. Knapp, New Orleans, and Dr. Geo. J. Friedrichs, New Orleans.

GEORGE WATT, M. D., D. D. S.

PIONEER DENTAL CHEMIST, ADVANCED THINKER, READY DEBATER, EDITOR, AND
INVESTIGATOR.

George Watt was born March 14, 1820, on a farm eight miles east of Xenia, Greene County, Ohio. His father, Hugh Watt, was born in the north of Ireland, of Scotch parentage, as was his mother, who before her marriage was Miss Isabelle Mitchell, a native of Pittsburg, Pa. Hugh Watt emigrated to the United States at the age of nineteen. The family were members of the *Conventer Church*. One of the tenets of their faith is freedom to the entire race. As a result, Hugh Watt would not take the oath to hold office under a constitution that permits human slavery. His home was one of the depots on "the underground railway route" from Mayville, Ky., (then called *Limestone*) to Detroit, Mich., which is known today as the *Limestone Road*.

George Watt was a descendant of James Watt, the improver of the steam-engine, to whom the Royal Society of London presented a silver medal (now in the possession of Dr. Watt's daughter), in commemoration of his invention.

James Watt, of steam-engine fame, was born at Greenock, in Renfrewshire, Scotland, January 19, 1736. His great-grandfather was a proprietor and small farmer of a small estate in Aberdeenshire; but taking part in the Montrose insurrection, he was killed in battle and his property confiscated. The family was thus reduced to poverty. His son, Thomas Watt, an infant at his father's death, was reared by relatives. As he grew up, he manifested a decided interest in mathematics, and became quite proficient. Removing to Greenock, he settled there as a teacher of navigation, surveying, and general mathematics.

He was very successful in his business, and was called to serve in important public capacities. Dying in 1734, he left two sons, John and James. James, the younger of these, was the father of James Watt, the improver of the steam-engine, who was a prolific inventor. He was the first to announce the composition of water, and wrote to his friend, Dr. Priestley, under date April 26, 1783, his conclusion that water was a compound of hydrogen and oxygen. This document was sent by Dr. Priestley to the President of the



Gen. Pratt

Royal Society to be read at a meeting of that body, but was mislaid, on the 15th of January, 1784, a paper communicated by Dr. Cavendish was read, which stands on record as the first publication of that fact. Had it not been for this accident, the credit of first announcing this fact would have belonged to James Watt.

Dr. George Watt claimed, however, that James Watt, the improver of the steam-engine, whom the Royal Society honored, was not the discoverer



Watt's Silver Medal.

of the composition of water, but that an obscure cousin of the inventor, also named James Watt, was the real discoverer, and that the inventor, James Watt, appropriated the discovery and promulgated it as original, much after the fashion Darwin did with Wallace's paper.

James Watt's brother John was drowned at the age of twenty-three, in 1763, during a voyage from Greenock to America. James Watt married a cousin, who died about 1773, leaving two children, one James, died unmarried at Birmingham in 1818, the other married Mr. Miller, of Glasgow, James Watt's second marriage was to Miss Macgregor. He died in 1819.

At the time of young George Watt's birth, Green County was sparsely settled, and the native forest was overrun with wild animals, of which Dr. Watt related many exciting incidents of hunting and capturing in his later life. Dr. Watt's parents were of the strict orthodox Scotch-Presbyterian

school, and his early training was of a high moral and religious order. At this period, little land was open to cultivation; the opportunity for an education was limited; the schools continued but a small portion of the year. Young Watt's educational training began at the age of seven. He worked on the farm in the meantime, receiving his fundamental education at the district school, the Boys' Academy of Thomas Steel, and an academy conducted by Rev. William Taylor.

Upon entering the academy, he engaged to work for his board and tuition. Under the arrangement, he was able to devote only a little more than half of his time to study; notwithstanding this difficulty, by industry and perseverance, he made rapid progress and was able to keep up with his classes. Being of a weak constitution, the family with whom he lived imposed on him many hardships and embarrassments, greatly taxing his strength and causing several illnesses which nearly terminated his career. These hardships eventually strengthened his character, making it possible for him to better withstand life's battle.

After remaining in the academy, where he devoted his energies to mathematics and the English and Latin languages for two years, he engaged in teaching a school a few miles distant from the academy; he continued teaching for four years, the latter part of the time near his father's home.

Desiring further education, in 1810 he entered Ripley College, at Ripley, Brown County, Ohio, where he remained about a year. In 1812 he returned to Green County to begin the study of medicine under the supervision of Samuel Martin, M. D., of Xenia, at that time a noted and successful physician, whose high conception of the dignity and importance of medical science and practice made a lasting impression on Dr. Watt. He practiced with and for his preceptor about two years, when he removed to Bentonville, Fayette County, Ind., where he soon acquired a paying practice. Not being satisfied with his medical knowledge, he entered the Medical College of Ohio, at Cincinnati, in 1846, and was graduated with the degree of M. D., March, 1848.

The faculty was composed of some of the most brilliant men of the day; among them were B. D. Mussey, a superior surgeon; H. T. Shotwell, the celebrated anatomist; Dr. Harrison, the well-known professor of theory and practice of medicine; J. Locke, a renowned professor of chemistry. Dr. Watt enjoyed the friendship of these men, who were impressed by his industry and eagerness for knowledge. The privileges they granted him were utilized to the fullest extent. To them he attributed the high order of his medical attainments. At the completion of his medical course, he returned to Bentonville,

Ind., and practiced one year, when the illness of his wife caused him to return to Ohio, where he began practice at Xenia, at which place he remained until 1850, when he removed to Kenton, Ohio, where he continued practice for two years. About this time his love for and inclination to special pursuits began to develop as shown by several investigations in which he engaged. Early in 1852, he entered upon the study of dentistry with Dr. Jonathan Taft at Xenia, Ohio.

His early and superior medical training and his attainments in chemical science made the scientific part of dentistry very easy for him; he soon mastered the technique, and after a year devoted to study, he became a partner with Dr. Taft, and so continued for two years at Xenia, and for four years after they removed to Cincinnati.

Having had for his preceptor the noted chemist and philosopher, Professor John Locke, many years a teacher in the Medical College of Ohio, Dr. Watt's ability as a teacher and as a thorough chemist was so well recognized that in 1853 he prepared and delivered a course of lectures on "Chemistry" in the Ohio College of Dental Surgery.

It is said "Dr. Watt was the first to deliver a course on chemistry adapted to the needs of the dental student." This is an error for in 1846, Dr. Elijah Slack delivered a course of lectures to the students of the Ohio College of Dental Surgery while holding the chair as Professor of Chemistry.

In 1849 Dr. Philip H. Austen was the occupant of the chair of chemistry in the Baltimore College of Dental Surgery. During the time this course was being delivered, Dr. Watt was a member of the dental class, from which he graduated with the degree of Doctor of Dental Surgery, February 22, 1854, and was elected dean of the faculty of this college in 1857.

Immediately after his graduation he resumed practice with his former partner, Dr. Taft. His ability as a teacher was such that he was, in 1855, elected Professor of Chemistry and Metallurgy in the Ohio College of Dental Surgery, which chair he held six years.

In 1852, he became a member of the Mississippi Valley Association of Dental Surgeons, and was for many years an active member and secretary, continuing in this office until his election as president in 1853. In 1854 the Society offered a prize of one hundred dollars for the best paper on "Dental Surgery." He was a competitor, and the prize was unanimously awarded to him.

In 1856, he became a member of the American Dental Convention, which at that time was the largest dental organization in the world. At this meet-

ing he read a paper on "Topical Remedies,"¹ which elicited much discussion and was extensively published.

He occupied a number of positions of trust and honor in the profession. He was vice-president of American Dental Convention and president of the American Dental Association, he having been elected at the meeting held July, 1862, at Cleveland, Ohio, and on the same day he became a member—the only instance of the kind on record.

He was one of the organizers, and for the first two years of its existence president of the Ohio State Dental Society. He was twice president of the Mad River Dental Society. He discharged every official duty efficiently and faithfully. Dr. Watt and Dr. Taft, October, 1855, became the owners and editors of the "Dental Register of the West," and conducted that journal for nine years, until Dr. Watt's health began to fail and he retired, leaving Dr. Taft in editorial control. Dr. Watt was one of the most easy and correct writers of the profession. He was a frequent contributor to periodical dental literature, his subjects generally being practical and pertinent. Among his contributions were the following:

"Essays on Ammonia," "Secondary Dentin," "Anaesthesia. Exposed Pulps," "Arsenic and its Compounds," "Calcium and its Compounds," "Dental Chemistry of the Mouth," "Tests for Chloroform," "Gold Alloy," "Alveolar Hemorrhage," "Historical Sketch of the Ohio College of Dental Surgery," "Dental Materia Medica," "Nitrous Oxid," "Salivary Calculus," "Thoughts on Dental Caries," "Alloys, Chlorin," "Nitrate of Silver," and "The Dental Profession and its Appropriate Work."

All of these essays were published in the "Dental Register," and in 1868 republished in book form by Dr. Watt, as "Register Papers, a Collection of Chemical Essays in Reference to Dental Surgery." In 1867, he published a volume, "Watt's Chemical Essays," which contained the principal papers he had written on dental chemistry; many of these papers had been published in various dental and medical journals; among these were his masterpieces, "Lord Oxygen" and "Lady Hydrogen," that are only comparable with Huxley's essay on "A Piece of Chalk" and Faraday's "Chemistry of a Candle."

Dr. Watt also wrote extensively on his chemical theory of dental caries which for a generation was accepted as the real theory of dental decay. He was a close student of English literature and familiar with all its classics, while his remarkable retentive memory enabled him to draw from these at will in writing or speaking; this added much to his literary productions and

¹ Vol. X. "Dental Register."

to his impromptu efforts, in which he was very fluent and impressive at dental meetings.

His literary models were Goldsmith, the "Child of Nature," whose poetry appealed to his heart, and Kirk White, the ascetic advocate of Calvinism, which belief Dr. Watt religiously adhered to through life. He was not only a great reader but a keen and consistent thinker and ready debater, and was about the only man in the dental profession who could, with his keen satire, successfully combat and compete with the arguments of Dr. William H. Atkinson, whose vagaries on Volapuk, Spiritualism, Swedenborgianism, etc., occupied and wasted much time at the American Dental Association meetings.

In connection with Drs. Hammel and Taft, he established a practice in Cincinnati in 1855. This relationship continued for three years when he removed to Xenia, where he resumed his practice, established many years before. Soon after this time, he began a series of micro-photographs that were far in advance of anything along that line before accomplished.

In 1865, he and Dr. N. W. Williams formed a partnership at Xenia, which continued one year, when they started a branch at Cincinnati, which Dr. Watt took charge of. In 1868, they purchased the dental depot of J. C. Walters & Co., which they conducted for three years. Failing health compelled him to dispose of his commercial interests and resign his professorship in the college and return to Xenia in 1871, where he had as a partner Dr. D. G. French, of Pittsburg, Pa., who was succeeded by Dr. E. G. Betty, of Cincinnati, and he by Dr. W. H. Sillito, who still continues the practice.

In 1881, Dr. Watt retired from active practice, organized and assumed the editorship of the "Ohio Journal of Dental Science," which he continued ten years until his death in 1893.

Dr. Watt was of an inventive turn and devised many new methods and appliances; among them were a hot-air syringe for drying cavities, a double hook elevator for extracting lower molar roots, and Watt's metallic base metal and flasks for dentures. He also claimed to be the first to adopt vulcanizable gutta-percha for dentures. It has been claimed that Dr. Watt invented crystal gold. This is an error, he did not invent the gold known as Watt's Crystal Gold,¹ and cannot claim the discovery of the welding properties of gold. Taft & Watts, of Xenia, did put a crystal gold on the market about 1853, but it did not take. Jackson, of Boston, published a method of making crystal gold in 1846, and published the fact that it could be made into a filling; that is the first mention recorded. A. J. Watts soon abandoned his patented

¹ "Dental Cosmos," Vol. VII., February, 1866, p. 346.

method, and adopted one by which it was made by electrolysis—a method kept a profound secret for many years, and first published in a microscopical journal.

In the autumn of 1860, Dr. Watt tendered his services to the nation, which were not accepted until May, 1864, when he was made surgeon of the One Hundred and Fifty-fourth Regiment of Ohio Volunteer Infantry. His efficiency is understood when it is stated that the sanitary record was unequalled by any other Ohio regiment. He was mustered out September, 1864, owing to being disabled by an injury to the spine from being crushed by a wagon which resulted in locomotor ataxia. Upon his return from the army he again entered practice. In 1865, while attending the American Dental Association meeting at Chicago, he suffered a severe attack of cerebro-spinal meningitis, from which he never fully recovered. This disease left his lungs so affected that he continued in feeble health until his death, which occurred at Xenia, February 16, 1893, of locomotor ataxia, at the age of seventy-three years. His remains are buried in Woodland Cemetery.

Dr. Watt was married April 17, 1845, to Miss Sarah Jane McConnell, of Xenia, who survived him, and died January 23, 1904. They had no children except an adopted daughter, Mrs. A. W. Sillito, who resides at Xenia. He was a member of the United Presbyterian Church and a consistent Christian. April 12, 1899, the Alumni Association of the Ohio College of Dental Surgery unveiled a marble memorial tablet to the memory of Dr. Watt. Not only for the work he accomplished in the field of science, but for his upright character and personal attainments, was he highly respected by his professional friends and fellowtownsmen.

The facts contained in this sketch were obtained from Dr. Watt's adopted daughter, Mrs. A. W. Sillito, Xenia, Ohio, Professor Jonathan Taft, Ann Arbor, Mich., and Dr. E. G. Betty, Cincinnati, Ohio.

ROBERT ARTHUR, M. D., D. D. S.

GRADUATE AT THE FIRST COMMENCEMENT OF THE FIRST DENTAL COLLEGE IN THE
WORLD. DEAN OF THE PHILADELPHIA COLLEGE OF DENTAL SURGERY AND OF
THE PENNSYLVANIA COLLEGE OF DENTAL SURGERY. ORGANIZER AND
FIRST PRESIDENT OF THE DENTAL ASSOCIATION OF MARYLAND.
AUTHOR, EXPERT OPERATOR AND THE FIRST TO MAKE KNOWN
THE COHESIVE PROPERTIES OF GOLD.

Robert Arthur, son of William and Ann Shay Arthur, was born July 22, 1819, at Calverton, near Baltimore, Maryland. His father and two brothers, James and Hugh, came to America and settled in that neighborhood about 1800, having been compelled to leave their native land in consequence of being concerned in the Great Irish Rebellion of 1798.

Dr. Arthur's mother was an interesting woman of decided character, having pronounced views upon life and current questions of the day. She lived to advanced life, and was on her deathbed at the time of the Baltimore riot in connection with the early days of the Civil War. The United States flag was flying over her son Henry's home, in which she was lying when the mob appeared, demanding the removal of the flag. She returned the message that she had lived under the flag and meant to die under it. It was not disturbed. It has been claimed that she was the supposed heroine of Whittier's "Barbara Freitchie."

Robert Arthur obtained his education at private schools near his home in Baltimore. After leaving school, by diligent study and an extended course of reading he acquired a good classical education, including Greek, Latin, French and German. Thrown on his own resources at an early age, he was apprenticed to a printer. Through the influence of his brother, T. S. Arthur, the well known writer, he made the acquaintance of several prominent literary and professional men of Baltimore; among them William D. Carpenter, editor of "The Baltimore Exchange," John Neal, Samuel Woodworth, author of "The Old Oaken Bucket," and Dr. Chapin A. Harris. Through the persuasion of the latter he was induced to begin the study of dentistry, and entered the first class of the Baltimore College of Dental Surgery at its organization



Robert Arthur.

in the fall of 1840. Dr. Arthur and the late Dr. R. Covington Mackall constituted the first graduating class of the college, and at the first commencement, March 9, 1841, received the degree "Doctor of Dental Surgery." This was the first time a distinctive title was conferred as a reward for successfully completing a course of study in dentistry.

He began practice at Baltimore, and in 1846 he removed to Philadelphia and located at 36 Sansom St. (old number), near Seventh, then a desirable neighborhood. He did not long remain. About 1847 he opened an office at Washington, D. C., where he practiced with much success seven years, the last two of which the winter months were spent in Philadelphia in order that he might attend to his duties as Professor of Principles and Practice of Dental Surgery in the Philadelphia College of Dental Surgery, which he assisted to organize.

He became a member of the American Society of Dental Surgeons at its second annual meeting at Philadelphia, August, 1841. He was then credited as practicing at Chambersburg, Pa. He was active in organizing the Dental Association of Maryland and was elected its first President in 1866.

He translated from the French, Blandin's "Anatomy of the Dental System," and this translation was published by the American Society of Dental Surgeons, 1845, as part of the American Library of Dental Science. He was present and took part in organizing the Pennsylvania Association of Dental Surgeons at Philadelphia, December 15, 1845, and served as its first Corresponding Secretary, and also on its committee to examine candidates for membership.

That society (which still exists active and energetic) was formed for the purpose of organizing a dental college in Philadelphia, intended to be a counterpart of that in Baltimore, and Dr. Arthur was one of those selected to be a member of its faculty. Vexatious delays, owing to difficulty in obtaining a charter, interfered seriously with their plans, so that it was not until 1852, and then under adverse circumstances, that the college was finally organized. All effort made by the members of the profession to obtain a charter from the Legislature of the State for a dental school were negatived by adverse political influence, when, much to the surprise of those engaged in this enterprise, quietly, a charter was granted to a political leader who let them know it was for sale. Finding that there was no other resource, after much negotiation, it was finally agreed that he should name the Board of Corporators, and leave the dentists free to name the faculty. Under this agreement the college was organized, and began its first session the first Monday in November, 1852, Dr.

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Brace & Sargent. 1895. By gift of Mr. V. W. Miller. Brackets in the middle of the page. The E. Bond L. 1895. By gift of Mr. S. S. Bond.

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Arthur taking the chair of Principles of Dental Surgery. It was not long before trouble began. The Corporators attempted to coerce the faculty into granting degrees to incompetent men. This they resolutely refused to do. As the close of the fourth session approached, the faculty having through the kind offices of a friend obtained a charter for a new college, resolved to end the controversy by resigning in a body at the close of the session. They then immediately organized the Pennsylvania College of Dental Surgery. Dr. Arthur served as Dean the last year of the old college, and the first year of the new one. At a meeting of the faculty held March 24, 1857, a change was proposed in the chair which Dr. Arthur held, to which he objected. Being overruled, he resigned, and thus terminated his connection with the college.

Dr. Arthur was never fully settled in Philadelphia, and on retiring from the college, he removed to Baltimore, where he lived until his death.

Dr. Louis Jack, of Philadelphia, was Dr. Arthur's closest professional friend and his student at the college, 1854. He writes of him: "During his Deanship he carried on a bitter struggle with one of his confreres on the faculty, whose views were retroactive, but he carried with him the other members of the faculty. While Dr. Arthur was an energetic and entertaining conversationalist, he had not much force as an extemporaneous speaker on formal subjects, but with his pen he always was clear and convincing and produced a profound impression upon his hearers and readers. His lectures were always elaborately prepared and lost nothing in force by being read, and were more instructive than most extemporaneous addresses. This was due to his earnestness, combined with clear logical arrangement of his treatise, clothed in excellent language and simple terms.

"His later years were somewhat embittered by the opposition excited by the system of treatment he advocated in his book, 'The Treatment and Prevention of Decay of the Teeth.' This condition was enhanced by his sensitive nature.

"I have never publicly related the circumstances which led him to observe the cohesive effect of heating gold foil. It occurred when I was performing some experiments for him as to the relative density of 'sponge gold' fillings and of fillings made of foil. The book of foil he gave me for the purpose had become hard and unmanageable by repeated handling. He was beside me overlooking the packing and observing the difficulty, suggested heating the foil to soften it. To our surprise it anchored like 'sponge gold.' Going to his office, he immediately proceeded to fill cavities with annealed gold, and from that moment threw aside crystal gold and ever after continued to em-

ploy gold cohesively. His observations on cohesive gold were soon adopted by the profession and put into practice."

Dr. James Truman of Philadelphia, student and admirer of Dr. Arthur, says of him: "My acquaintance with Dr. Arthur was confined to my intercourse with him as professor and student. This, however, was to me an inspiration that the years have failed to obliterate. Dr. Arthur was a scholar far above the average of those who claim that distinction. His lectures, although written out, were to me mines of information at the time. I have never ceased to regard him as head and shoulders above the dentists of that period, and these included many brilliant men."

Dr. Arthur's contributions to dental literature published in book form were: "Translations of Blandin's Anatomy of the Dental System," Baltimore, 1845. "A popular treatise on the diseases of the teeth, including a description of their structure and modes of treatment, together with the usual mode of inserting artificial teeth," New York, 1845-6. "Treatment of Dental Caries, Complicated with Disorders of the Dental Pulp," Philadelphia, 1858. This was one of his best articles. In it he maintained and defended the position that dental caries were not self-propagative, and that under certain circumstances it was allowable to permit a portion of carious tissue to remain in the cavity. "Argument Against Professional Patents," Baltimore, 1853. "Some Suggestions Concerning the Nature and Treatment of Decay of the Teeth," Baltimore, 1866 and 1867. "Treatment and Prevention of Decay of the Teeth, a Practical and Popular Treatise," Philadelphia, 1871, which he considered his best work and which advocated his system of separating teeth for prophylactic purposes. This system was known as "Arthurizing" and consisted of separating by means of filing the teeth on the proximating surfaces.

He advocated and practiced this method until his death, and so strong were his convictions regarding its value that he pursued it unswervingly, notwithstanding its effect upon his pecuniary interests, on account of the prejudices excited against him by those opposed to the system.

During his residence in Philadelphia he wrote his "Treatise on the Use of Adhesive Foil," 1857, in which he presented the profession with the principle of using and welding annealed gold by serrated pointed instruments, which was one of the real improvements in the mode of operating.

He also contributed the following essays: "A description of a mode of filling teeth with No. 30 foil, with fine needle points:" with these he made beautiful and solid fillings. The method was very tedious, and he soon aban-

doned it and adopted Sponge Gold. Other subjects he wrote on were: "A New Method of Using Gold Foil;" "Filling Teeth;" "Sponge Gold;" "An Address on Dental Literature;" "Separation of Teeth;" "An Address on Dental Education;" "Treatment of the Dental Pulp;" "Dental Caries, Its Nature and Treatment."

Before his death he was engaged in preparing a "Treatise on Dental Surgery," which, owing to ill-health and pressure of other work, was never completed. It is a question whether his peculiar method of forming interproximal separations was thoroughly understood by those who bitterly opposed him, or, indeed, by many who followed for a time his teaching. He had in mind the idea of not only making a separation between the teeth, but of so shaping this separation as to first, expose as little as possible the interproximal gum tissue; second, that it should not be liable to close, as was the case with filed separations which had been for good reasons long discarded; third, that they might be kept clean by the constant passing of food over them, and would not favor the food packing between the teeth. To this end they were made like a double V, that is they were V-shaped perpendicularly and also horizontally. The surfaces were made perfect planes, and exquisitely polished, and in favorable cases proved "self-cleansing" and tooth saving. A great deal of "Arthurizing," so called, was mere "tooth hacking" and had nothing in common with the work of the great master who suggested it.

In recognition of his writings and other professional work he was elected a corresponding member of the Odontological Society of Great Britain of which John Tomes, F. R. S., was President. The honorary degree of Doctor of Medicine was conferred on him by the Maryland College of Medicine of Baltimore.

Dr. Arthur was married at Philadelphia in 1847 to Miss Mary Hemple. To them were born seven children, six of whom and his widow, now at a very advanced age, are living. Dr. Arthur's resemblance to John C. Calhoun, a cousin of his mother, was remarkable; in person he was nearly six feet tall, and of light complexion. He became prematurely gray, having quite white hair at 35 years.

He died June 22, 1880, at Baltimore, of embolism, which occluded the main arteries of his right leg, gangrene resulting. He was buried in Greenmount cemetery, Baltimore. His most distinguished characteristics were his strict integrity and conscientiousness. He was of gentle demeanor and of a retiring disposition, but had courage and boldness when aroused by any wrong, or when a principle at stake required defense.

He greatly influenced dental literature, and his teachings largely modified the practice of dentistry. He will long be remembered as one of the first class in the world's history to receive the Dental Doctorate degree, as a bold and fearless writer, and as an expert operator, while the introduction of cohesive gold foil will remain his enduring monument in dentistry.

The facts contained in this sketch were obtained from:

American Journal of Dental Science, Vol. 2, Sept., 1841, page 134.

The American Journal of Dental Science, Vol. 14, Third Series, Page 214.

Dental Cosmos, Vol. 22, p. 437—1880.

British Dental Journal, Vol. 23, p. 957, and

Mr. Robert Arthur, New York, son of the subject of this sketch.

RICHARD COVINGTON MACKALL, M. D., D. D. S.

MEMBER OF THE FIRST GRADUATION CLASS, BALTIMORE COLLEGE OF DENTAL SURGERY.

The death of Dr. R. C. Mackall occurred at Elkton, Md., February 16, 1902, and closed the career of the first graduated dentist to practice in St. Louis.

Dr. Mackall was born at Wilna, Md., January 14, 1822; after taking an academic course at New London and Bel Air, he entered the first class of the Baltimore College of Dental Surgery, and graduated from that institution at the age of 18 years, in 1840, in company with Dr. Robert Arthur, who was his only classmate.

October 10, 1841, Dr. Mackall arrived in St. Louis and announced in an advertisement he was "a graduate of the Baltimore College of Dental Surgery." The doctor did not meet with the success he anticipated and in 1845 returned to his native State, and graduated in medicine from the University of Maryland, in 1857.

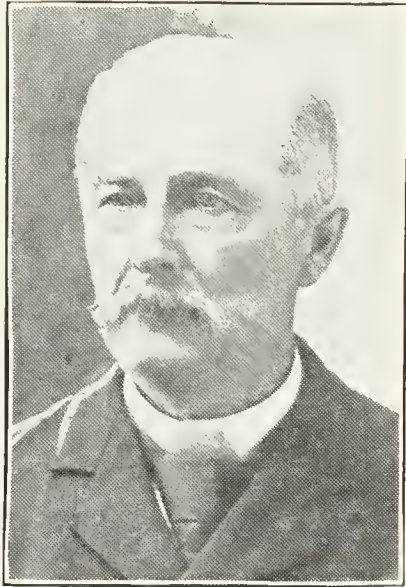
In a letter received a few months before Dr. Mackall's death he wrote me: "In my time, in St. Louis (1841-5) there were only a few dentists; Dr. Hale's office was on Fourth St., near Vine, he had the best practice and was an excellent operator and a clever man; Dr. B. B. Brown was at Chestnut St., near Third; Dr. Forbes, on Second between Chestnut and Vine; Dr. Clark, on Market, and Dr. McKellops, a very clever man, on Third St. near Vine. In 1845, Olive St. hardly extended beyond Seventh St. Our cricket grounds were on the Commons just at the Western end of it, the Planter's Hotel was the great hotel, and Barnum's City Hotel was on the corner of Third and Vine St."

After Dr. Mackall's graduation in medicine he practiced at Savannah, Ga. During the Civil War he was practicing medicine in Fairfax Co., Virginia. Being a strong Southern sympathizer, his property was confiscated by the Union troops; and he was made a prisoner. He was paroled and returned to his birth-place.

He entered public life, and became owner and editor of the "Cecil Demo-

crat." He possessed marked literary ability, and was well known as a writer for magazines and newspapers. For many years he was president of the Cecil Country school commissioners; and was elected to the Maryland legislature in 1888. He was a prominent member of the Episcopal Church.

Dr. Mackall was a younger brother of Gen. George W. W. Mackall of the



R. C. Mackall

Confederate Army, and of Henry S. Mackall, a well-known member of the Maryland bar. He is survived by one son—W. Hollingworth Mackall—a prominent business man of Elkton, Maryland.

The passing of Dr. Mackall ended a life well spent. He was respected for his intellect, his courage and his sterling character both in public and private life. He was present at the birth of dental collegiate education; and lived to see wonderful changes for the profession's betterment.

EDWIN JAMES DUNNING, D. D. S.

PIONEER DENTIST, LOVER OF ART AND NATURE AND SHAKESPEAREAN DE-
LINEATOR.

Dr. Chas. Channing Allen of Kansas City has very aptly said, "No man has completely fulfilled his obligations to himself and society who has not cast his mental vision farther than the bounds of any one vocation. A specialty is useful and necessary, but should be used as a tool, and no man would use one tool to the exclusion of all others. A man should know the generalities of many things. The 'Jack of all trades,' when he rises in dignity above the potterer, is worthy of great respect, and is the best man of all to erect a useful and successful specialty. Such a man can successfully counteract the narrowing and belittling effect of too close application to a single branch of knowledge."

"Many of our pioneers have contributed to literature, art, and the collateral sciences, and by their versatility and talent have enlarged the other things they attempted; this has caused their names to be recorded, not only as great dentists, but also being equally great in the things they attempted as recreations or amusements."

Few characters amongst the many who have so materially contributed to raise the standard of our calling, have been more versatile than Edwin James Dunning, who was born in Camillus, New York, July 19, 1821. He was the son of Dr. Uriah H. Dunning, a country physician, who also practiced dentistry, and Emily James, a sister of Dr. Edwin James, a physician and botanist.

Young Dunning's early education was obtained at Saratoga Springs, Seneca Falls, and Ithaca, where in 1838, at the age of seventeen, with a little preliminary tutoring in his father's office, he began to fill the teeth of his pupils when he taught a winter term of a district school.

In the spring of 1839, desiring a more thorough knowledge of dental science, he entered the office of Dr. Amos Westcott, then a prominent dentist of Syracuse, with whom he remained until 1844. He went to New York City and, at the age of twenty-three years, entered as an assistant the office



E. J. Dunning -

of Dr. Eleazar Parmly, a popular and progressive practitioner, then at the head of the profession in that city. This relation continued for twelve years, until 1856, when he established an independent practice, his office being at 11 Waverley Place. This he maintained until failing eyesight, in 1874, compelled him to give up practice.

He did not attend or graduate from a dental college. The Baltimore College of Dental Surgery conferred the honorary degree of Doctor of Dental Surgery upon him in 1846. The New York College of Dentistry was organized by Norman W. Kingsley and William H. Dunning in 1865, and began its first session in 1866. In this institution Dr. Dunning, at a great personal sacrifice, accepted the chair of Professor of Operative Dentistry, the session of 1867-68. He was succeeded by Dr. Frank Abbott. While he was an earnest teacher, he was radical, and exacting in his demands on his students, and after one year's efforts resigned.

Dr. Dunning was noted particularly for his ability as a manipulator of the old "soft" (non-cohesive) gold foil upon the wedging principle, without the use of the rubber dam. He was noted for his skill and thoroughness of finish in his operations, and the year he taught at the college, showed his distinct characteristics by teaching this method against all others. He was a pronounced thinker, often called "radical" by his associates, and had pronounced views on prophylaxis and other subjects.

Dr. Dunning is credited with being the first to use Plaster of Paris as an impression material but it has not been definitely proven that he was the first. Like the discovery of the cohesive properties of gold and many other things in our profession, as many men were experimenting in the same line at about the same time, the question of priority becomes in these cases a difficult one to definitely decide. He is also credited with being one of the first to treat teeth, the pulps of which had been devitalized, demonstrating that such teeth, which had before this time been considered, when giving trouble, incurable, could be treated and rendered useful. Drs. Edward Maynard, of Washington, and W. H. Dwinelle, of New York City, and John S. Clark, of St. Louis, also were experimenting along this line about the same period.

Although an early member of the American Society of Dental Science, he was not a dental society man, and was personally opposed to Dr. William H. Atkinson, and would not affiliate with him.

He had an established system of fees for his services, uniformly charging \$15.00 per hour, both at his New York office and at his country place at Lenox, Massachusetts, where the attendants at a large fashionable school

were his devoted clients. He tutored a number of dentists who have been a credit to his interest in them. Among them were Drs. F. F. Durand, George Starr Hawes, Samuel E. Davis, Charles O. Kimball and Dr. Nash, all of New York City, and Dr. S. A. Hopkins, of Boston.

Although Dr. Dunning's name appears as co-editor with Chapin A. Harris and Amos Westcott, of the VII Volume of the "American Journal of Dental Science," he is not credited with doing much professional writing. In this journal he contributed two well written articles one upon "Practical Dentistry" and the other upon "Exposed Nerves." His best contribution was an address upon "The Preservation of the Teeth," delivered February 19, 1860, to the pupils of Eaglewood School; this is a masterly address, filled with frequent quotations from Shakespeare, Burns, and other writers relative to odontological ills.

He attended and was a member of the Unitarian church. He was a personal friend of Rev. Dr. Henry W. Bellows, and others prominent in the Unitarian denomination. He was always deeply interested in religious and philosophical matters. In politics he was an ardent Republican. He was a member of the Century Club and the Academy of Design in New York. His tastes and aspirations were for art, music, and literature; all that is best in life appealed to him and he was well posted on literature, conversing well on many topics. He sang well, and was a great devotee to art, being a member of the Academy of Design, and associated much with artists. He was similar to Dr. W. H. Dwinelle, as far as artistic taste is concerned.

As a youth, he inherited a delicate constitution but by systematic training developed himself until he attained a splendid and lasting bodily health. He had a great fondness for nature and eagerly turned to it on all occasions. Walking great distances, riding and driving greatly refreshed his health and strength. His vacations were passed in the Adirondacks, at the celebrated "Stillman Camp," with Lowell, Emerson, Agassiz and other celebrities who were his close friends. Durand, the artist, was another friend with whom he rusticated at Lake George. He also spent some of his vacations in Italy and Switzerland, mountain climbing, for which he had an especial fondness. During one of these European trips he went to London where he was shown marked attention by the leaders in the profession.

During the Civil War he was on the field after the battle of Antietam, as an assistant to the Sanitary Commission, where he did effective service for the wounded. He also served as a special policeman during the New York riots in 1863.

Dr. Charles Otis Kimball, a student of Dr. Dunning, says of him: "He was a most attractive man, in person tall, strong and vigorous, with a full, low-pitched, well-modulated voice, with a bright eye and a winning smile, careful and exact in speech, polite and courteous in manner, though he could be on provocation abrupt to sternness. Thorough, painstaking, and quick in his work, unsparing of himself (and his patients where necessary), but always thoughtful and considerate of others, his constant aim was to excel in work, not for his personal gratification but for the good of others, believing that he was working out his Christian life in his daily work at the chair. As his practice grew and his fees increased, each increase meant not so much more added to his income as so much more time and care given to each operation."

His death, caused by nephritis, occurred March 17, 1901, in Cambridge, Massachusetts, and his remains were interred in Newton Cemetery. He was married three times. His first wife was Miss Luey Sage, whom he married in 1842, a sister of Henry W. Sage, well known in connection with liberal endowments to Cornell University. He had six children by his first wife, two sons who are now living. His second wife was Miss Esther Hazard whom he married in 1869. His third wife (and widow), Mrs. Christine (Boughton) Dunning, whom he married in 1881, now resides in Pittsford, New York.

In 1872 he went to California, remaining until the spring of 1874 when inflammation of one of his eyes, caused by too constant work at the chair, brought on a partial blindness and compelled his retirement from practice, May, 1874. He spent the next three years at Lenox, Massachusetts, and then again went to California, becoming totally blind in the fall of 1877. In California he resided until 1880, when he returned East and lived at Newton Centre, and Elmira, New York, and Cambridge, Massachusetts, where he died in his eightieth year.

At the age of fifty-three, at the height of his usefulness and prosperity, came "the withering touch upon his eyes," and he gave up his profession and walked the balance of his life in darkness. Many times it takes some great calamity or sorrow to awaken and to develop the dormant talents in mankind. As the thrush sings more sweetly when blinded so Dr. Dunning's talents, that, possibly for the lack of time or inclination, were not given full sway and did not respond to their full possibilities until the calamity came upon him. When blindness came the poetic chords of his nature, so highly attuned, responded to his environment and he left us as a monument to his zeal "The Genesis of Shakespeare's Art. A Study of his Sonnets and Poems" a book of 336 pages, published by Lee and Shepard, Boston, 1897), a most impor-

tant library reference book, while it has not been widely circulated and has had but little popular sale, it is highly appreciated by Shakespearean students as being a most complete delineation of the labors of that "Matchless Bard of Avon." This is a study of Shakespeare's Sonnets. In the light of Dr. Dunning's theory that the Sonnets were allegorical of "youth" the impersonation of which was Shakespeare's ideal.

A close friend of Dr. Dunning says of him:

"As we walked up and down the beach at Santa Barbara he talked not of the life that was behind him, but of the life that was before him. He was one that put on the armor, not as one that was putting it off; he was preparing for life; the life of action had passed, the life of meditation had begun; with eager enthusiasm he talked of the great poets who were to be his companions." They had been the amusement and recreation of his hours of rest, now they were to be his friends and teachers. With cheerful courage he turned his face towards the life of the mind, saying, "Now that I can never read Browning's 'Saul' again, I will commit it to memory." Day by day he committed to memory poems of the great English authors, Wordsworth, Tennyson, Browning, Shelley, till he had over sixty poems stored away in his mind ready for a moment's use.

Then he began the study of Shakespeare's sonnets, memorizing them until he had every one of the hundred and fifty-four at his tongue's end, studying also his other poems, memorizing some, reading and re-reading each play from one to six times, and then meditating upon them "during his waking hours by day and by night through many years," until their meaning came clearly to him as a revelation of the great poet's deepest inner experiences in his poetic life and he thought with such a spiritual exaltation that his own blindness seemed almost a providential boon. Thus "for more than twenty years Dr. Dunning exhibited to all who knew him the power of the spirit to triumph over bodily infirmities; his years of blindness were years of intellectual growth."

The results of this profound study this daily living with the poet, were published in 1897, when he was seventy-six years old, under the title of "The Genesis of Shakespeare's Art."

These years of darkness were not years of gloom; they were years, as we have seen, of growing intellectual life. They were filled with intense interest in the life of the world, with prevailing cheerfulness and serene Christian faith that made them, as he often said, his best years.

And the golden thread running through all, through the shadow and the

sunshine, the bright days and the dark, weaving both into a beautiful life, making its study worth our while, was the steadfast purpose to regard every power and ability as a divine trust to be used to the full in the service of man.

“Then soul, live thou upon thy servant’s loss,
And let that pine to aggravate thy store;
Buy terms divide in selling hours of dross,
Within be fed, without be rich no more.
So shalt thou feed on Death, that feeds on men;
And Death once dead, there’s no more dying then.”

The principal facts contained in this sketch were obtained from Mrs. Christine B. Dunning, Pittsford, New York, widow of the subject of this sketch, Dr. Wm. B. Dunning, grandson, New York City, Dr. F. F. Durand, New York City, Dr. G. Alden Mills, New York City, and “A Biographical Sketch of Edwin James Dunning,” by Charles Otis Kimball, M. D., New York City. Read before the New York Institute of Stomatology, June 4, 1901.

EDWARD MAYNARD, A. M., M. D., D. D. S.

A BORN MECHANIC, AN EXQUISITE OPERATOR, AND THE INVENTOR OF THE MAYNARD RIFLE.

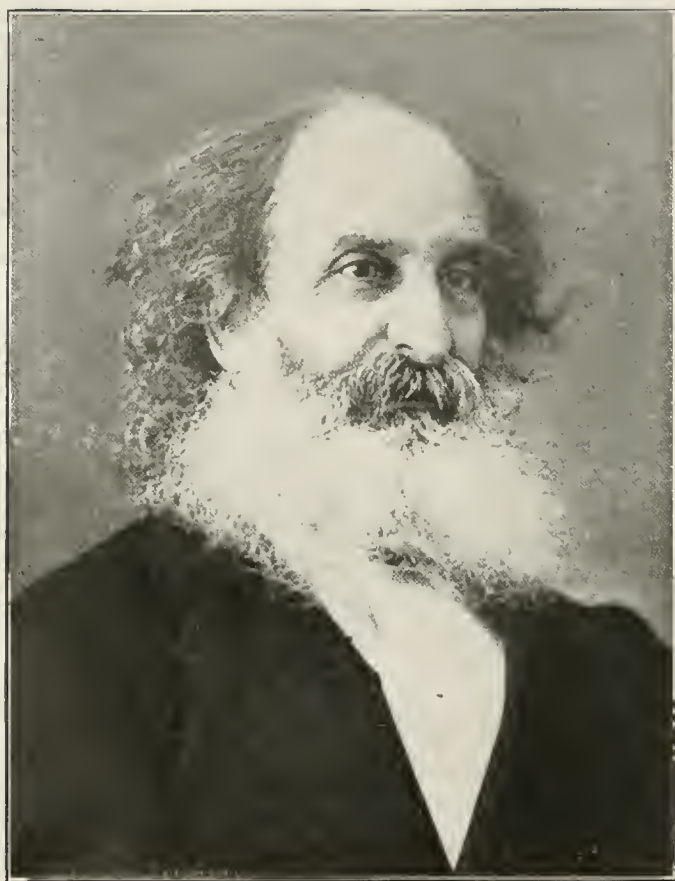
Edward Maynard, the son of Moses and Chloe Butler Maynard, was born in Madison, N. Y., April 26, 1813. Moses Maynard was a farmer and sheriff of Madison County, also a member of the State Legislature of New York, and a major in the New York State militia—War of 1812; his commission as major is now in the Military Museum at West Point.

Young Edward received his early education in his native village, and early evinced a desire to enter the army. He received his preparatory education at Hamilton Academy, and was appointed cadet to the Military Academy at West Point by De Witt Clinton, a friend of his father's, entering that institution in 1831. Being of delicate health, and finding the drill duty too exacting, he was compelled to resign the same year. This he did, and began the study of civil engineering, law, drawing, architecture, and anatomy, all of which did much to educate his hands and brain for dentistry, which he adopted as a profession in 1835.

He entered upon all his tasks with much earnestness, and was never satisfied with half-way work. For a short time only, in 1835, he was associated with a dentist in Utica, N. Y. All the instruments he used when he commenced practice were made by himself, forging his work in a blacksmith-shop in Sherburne, N. Y. He prided himself on his ability to make all of his own instruments, and concluded that a dentist should be able to do this, excepting, perhaps, the rougher work in forging forceps.

He was, however, a born mechanic. In his early days of practice, the manufacture of dental instruments was not as well systematized as it later became, and on this account there was far more diversity in the forms used, each practitioner selecting or inventing those especially suited to his personal needs.

Dr. Maynard was as skillful in welding iron and steel as in welding gold, and was perfectly at home in the blacksmith-shop. The instruments he made were well designated and artistically finished. Many of these are now in



Edmund Macmillan

the possession of his son, Dr. John D. Maynard, of New York City, and are truly works of art.

He located in Washington, D. C., in 1836, and continued to practice there, except during short intervals, when absent abroad, up to March 1890. From the beginning of his career, he was of an inventive turn of mind, and his inventions in instruments and modes of using them were numerous. He was an expert in wood-engraving, and many specimens of his work are still in existence. In wood-carving, also, he showed much ability. Some of his earlier efforts in modelling clay were wonderfully executed. In drawing and coloring he was particularly happy; no architectural drawings could exceed his in correctness of detail and finish: they ranked with the best efforts of the most accomplished experts. He was a member of the Sketch Club of Washington, D. C., where he spent many evenings sketching from the nude. He was also a surveyor.

By his knowledge of anatomy and his continued research, he discovered the great diversity in the situation, form, and capacity of the maxillary antra, which facts he made known in 1846 to the faculty of the Baltimore College of Dental Surgery, who officially acknowledged the importance of his discoveries. From that time they have been regarded as of great significance and value in the treatment of the maxillary sinus.

He also was the first to announce the existence of dental fibrils, based upon his discovery that sensitive dentin could be cut with less pain in certain directions than in opposite ones. This subject was discussed and reported in the transactions of the American Society of Dental Surgeons before any announcement of the discovery of such fibrils by the aid of the microscope.

He invented the Maynard improved drill for preparing cavities, which was the best of its time. He early advocated and practiced the use of enamel anterior fillings by a method described by Dr. A. J. Volek, of Baltimore, Md., in the "American Journal of Dental Science," July, 1857, p. 322. He also practically evolved and perfected a system of non-cohesive gold filling. He possessed wonderful manipulative ability, not only in filling teeth but in the use of tools and instruments. He was also of the early experimenters with arsenic as a pulp devitalizing agent, and among the first to advocate applying it neatly and in small quantities, so as to avoid injury to the surrounding tissues.

In 1838 he advocated removing the tooth-pulp and filling with gold foil the pulp-canals and cavity in molar and bicuspid teeth: this operation, through his exquisite dexterity, he was very successful in accomplishing. He

is said to have been the first to invent and use barbed broaches for pulp extirpation and for enlarging the pulp-canal. His original broaches were of untempered steel, a watch-spring filed down to the fineness of a horse-hair, barbed on one side, which he used much as a Donaldson broach is now used. This operation he performed in Europe in 1845, at St. Petersburg, where at the suggestion of Dr. Arndt, the emperor's physician, who had witnessed the operation, and was charmed by his skill, Dr. Maynard was employed in the Imperial family as court dentist.

Nicholas, the emperor, offered to create the title of "Actual Dentist to His Imperial Majesty" with the rank of major for him if he would remain in Russia ten years and practice and teach his methods of practice, Dr. Maynard to be attached to the court with a salary or to have a private practice as he should elect. This offer Dr. Maynard refused. Accompanying the handsome sum paid him for his services was a magnificent diamond ring, sent as a token of the emperor's appreciation.

Not satisfied to be away from his native land, in 1845 he returned to America and resumed practice at Washington, D. C., where he devoted himself exclusively to operative work. His clientele was confined chiefly to official circles and the wealthier classes. He had several Presidents for his patients, besides Cabinet officers, Senators, Representatives, army and navy officers, and foreign ministers.

In 1856 he accepted the chair of Theory and Practice of Dentistry in the Baltimore College of Dental Surgery, which he continued to fill until 1860. Later, in 1887-89, he held the same chair in the Faculty of the Dental Department of the National University at Washington. In connection with this chair he also gave practical instruction in dental technics. In consideration of his contributions to art and science, he was awarded the most distinguished honors and recognition throughout the civilized world, besides being the recipient of medals, decorations, diamonds, and other valuable gifts.

He received the following honorary degrees: that of A. M. from Columbia College, Washington, D. C.; that of M. D. from the Western Medical College in 1840, and that of D. D. S. from the Baltimore College of Dental Surgery in 1841. Dr. Maynard was a charter member of the American Society of Dental Surgeons, and became an honorary fellow of the American Academy of Dental Science in 1867, and of the European Society of American Dentists in 1878. He was also a member of the section on Oral and Dental Surgery of the American Medical Association, and of the International Medical Congress of 1887, as well as of numerous other societies and of the Masonic Fraternity.

He also received many diplomas of merit from distinguished seats of learning at home and abroad and from foreign governments and crowned heads. From 1843 to 1850 he succeeded Dr. W. H. Dwinelle as associate editor, in connection with Drs. Chapin A. Harris and Solyman Brown, of the "American Journal of Dental Science." Dr. Maynard contributed the following essays to our literature, viz., "Irregularity of the Teeth;" "Pulp Canal; Root Filling;" "Vascularity of Tooth-Bone," and "Some Methods of Filling Fangs."

By invitation of the Secretary of War, Dr. Maynard attended the examination of the cadets of the Military Academy at West Point in June, 1863, and was there deeply impressed with the need of a corps of dental surgeons to be attached to the army and navy for the care of the teeth of both officers and enlisted men. This he earnestly recommended to the War Department.

His opinions and knowledge were so appreciated by the Government that he was employed to make the first experiments, in conjunction with the authorities in Belgium, in regard to the manufacture of Damascus steel.

In 1845 (March 3) Dr. Maynard patented a system of priming for fire-arms to take the place of the percussion cap. Coiled and protected in a recess of the lock was a water-proof, incombustible, tape-like paper strip, having on one side fifty lozenge-like elevations at equal distances apart.

Each elevation contained a charge of fulminate. When the hammer was cocked, one charge was automatically projected over the nipple. When the hammer descended it cut off and fired the charge. The United States Government bought the right to use this invention, and after many years of delay applied it to about thirty thousand rifles and muskets. It was honored abroad also, the King of Belgium complimenting the inventor in person as the "author of such a beautiful invention," and offering to apply it on trial to the muskets of a regiment of his soldiers; the King of Prussia made him a Chevalier of the Military Order of the Red Eagle, and the King of Sweden bestowed upon him the Great Medal of Merit—an honor rarely given to a foreigner.

In 1851 (May 27) and 1859 (December 6, second patent) he patented a breech-loading rifle known now throughout and beyond the limits of civilization as the Maynard rifle. His later improvements on the mechanism of this arm (those patented in 1859) adapted the arm to the use of his invention in metallic ammunition (patented 1856, June 17), in which a truncated, cylindro-conoidal projectile is tightly set in a cylindrical metallic cartridge, having and holding firmly the axis of the projectile in the axis of the cartridge; thus,

in the act of loading a gun, placing the axis of the projectile precisely in the line of the axis of the bore of the gun, and holding it in that line until it, in the act of firing, has fully entered the bore. As the use of this kind of ammunition resulted in a very great increase in precision, and on frontier trial proved its ability to withstand all the casualties of rough service, it eventually came to be adopted by the United States Government, by all American manufacturers of breech-loading arms, and is now in use by nearly all nations for their military rifles and by nearly all riflemen in all countries.

In 1860 (October 30) he patented a method of converting muzzle-loading arms into breech-loaders. The Secretary of War ordered the two master armorers, Allin, of Springfield Armory, and Ball, of Harper's Ferry Armory, to examine and report at Washington upon this invention. They made a detailed estimate of the cost of converting muskets and making new ones on this system, and reported that they had tried it and found it safe, strong, and durable. The principal claim in this patent is on a device, then first applied, of relieving the hinge of the recoil-block from strain by compelling all the rearward pressure to come against the Breech-pin or other solid rear end of the barrel. Under various modifications of form and position, this particular feature has come into extensive use in military arms in the United States and other countries.

In 1868 (October 20) he patented the joining together two rifles or shot-barrels by a device that would allow either barrel to expand or contract endwise independently of the other. This proved especially valuable in double rifles, inasmuch as by the old method of joining barrels immovably, either barrel may be so heated by a single shot or by having the sun shine on it while the other is in shade that it will become measurably longer than the one not so heated, resulting in both barrels being made crooked and kept so until the heat is equalized by convection.

In 1886 (June 8) he patented an invention for indicating the number of cartridges in the magazine of a repeating firearm at any time. A disk of metal, say a quarter of an inch thick and of the diameter of the magazine, forms the front end of it. This disk has figures plainly marked on its circumference from 0 to the full number the magazine can contain. It is connected with the magazine spring, which revolves in one direction as cartridges are put into the magazine, and in the opposite direction when they are pushed out.

The value of the invention is really appreciated by military officers, to whom it is of prime importance that they should be able to tell at a glance

to what extent, if at all, the magazine is supplied before going into action, and by hunters for a similar reason.

Many other patents were granted to Dr. Maynard, many of them subsidiary, in firearms and ammunition.

The Maynard rifle, patented several years before the Civil War, was the first breech-loader that proved itself equal to the best muzzle-loading rifles. His model revolutionized the arms of the civilized world. This rifle was simple, safe, and efficient.

All of his models, his inventions in guns, his medals and decorations are deposited in the National Museum at Washington, in cases especially set apart for them, for the purpose of showing everything in the line of firearms from his earliest to his latest invention.

Dr. Maynard was twice married. His first wife, whom he wedded in 1837, was Miss Ellen Sophia Doty, of Sherburne, N. Y. She died at Cooperstown N. Y., October 3, 1863.

Six children of their marriage survive them. They are George W. Maynard, an eminent artist of New York City; John D. Maynard, dentist, of New York City; Mrs. James L. Hatch, Mrs. Andrew J. Hatch, and the Misses Marie and Virginia Maynard.

In 1869 Dr. Maynard married Miss Nellie Long, of Savannah, Ga., and one daughter, Mrs. Edwin Q. Laselle, of Troy, N. Y., was the issue.

Dr. Maynard retired from practice early in 1890 on account of ill health. His death was caused by Bright's disease, and occurred May 4, 1891, at Washington, D. C. He was buried in the Congressional Cemetery, after a useful life of seventy-eight years.

Dr. Maynard was very aristocratic and dignified in appearance, yet modest and retiring in his nature, with many of the delicate qualities of womanhood, combined with a pronounced decision and firmness of character. These, with his poetic and genial nature, gave charm and grace to his presence.

He was a man of rare qualities and acquirements, of gentlemanly and courteous manner, and an interesting companion and conversationalist. He had the warm personal friendship of a large and varied circle of acquaintances among leading men, and was a credit to his chosen calling.

The facts in this sketch were obtained from "Memorial Sketch," by H. W. S. Cleveland, in *Forest and Stream*, reprinted in *Archives of Dentistry*, Vol. VIII., 1891, pp. 299-303; *Dental Cosmos*, Vol. XXXIII., June, 1891, p. 493; *International Dental Journal*, Vol. VII., June, 1891, pp. 413-416; Dr. Maynard's son, Dr. John D. Maynard, New York City; Dr. W. F. Harlan, Washington, D. C., and Dr. Howard H. Barker, Washington, D. C.

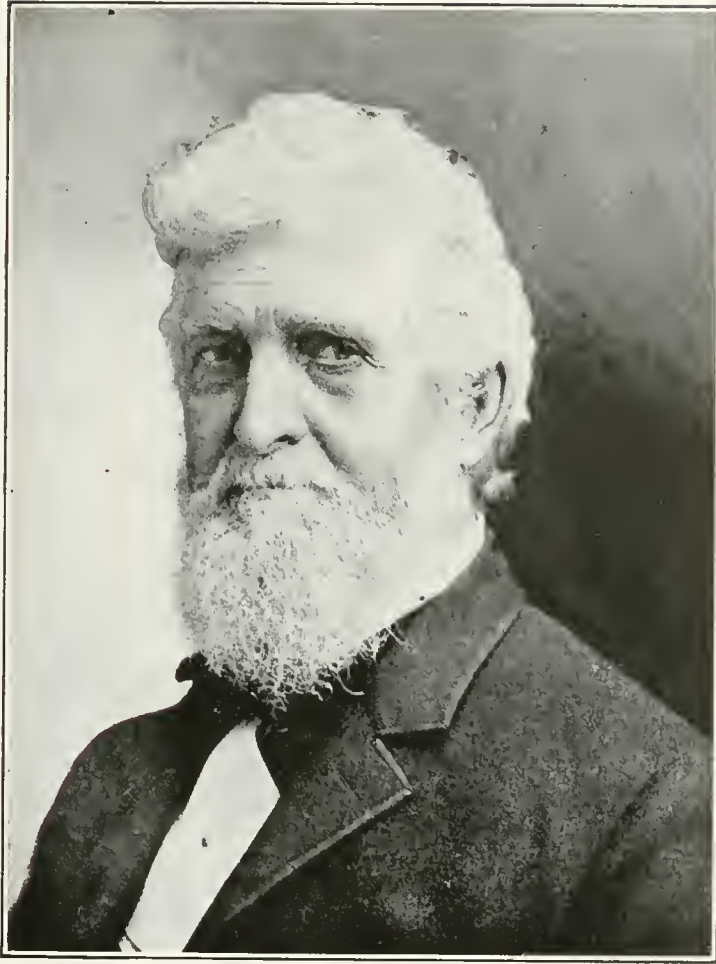
WALTER WEBB ALLPORT, M. D., D. D. S.

ARTIST, MECHANIC, ADVOCATE OF HIGHER DENTAL EDUCATION, THE SUCCESSFUL
ORIGINATOR OF DENTAL SOCIETIES, CO-ORGANIZER OF THE SECTION OF
DENTAL AND ORAL SURGERY IN THE AMERICAN MEDICAL ASSOCIATION,
AND FATHER OF THE WORLD'S COLUMBIAN DENTAL CONGRESS.

Walter Webb Allport was born at Lorain, Jefferson County, New York, June 10, 1824. He was the son of John and Eve Allport. John Allport was of English descent, his father having been sent to America as a fiduciate of the English Government before the Revolutionary War, while his wife's family were from Holland. Sir James Allport, a cousin of W. W. Allport, was one of the greatest railroad men of England, being for many years manager of the Midland County Railroad; another cousin, the Rev. Dr. Allport, was Dean of an Episcopal church in England.

Young Allport's boyhood was spent upon his father's farm near Oswego, N. Y. At the age of eleven years, the father met with reverses and the lad was thrown on his own resources. Leaving home with only two silver half dollars in his pocket, he walked forty miles to Rodman, where he found employment with a farmer. Here he worked a few months and then went to Watertown where he learned the tailor's trade which he followed for two years receiving his board and clothes for his labor. After developing into a competent journeyman he worked and attended school as opportunity offered, studying in his spare moments. In this way he obtained his education. In 1844 he entered the office of Professor Amasa Trowbridge, at Watertown, N. Y., to study medicine, this he followed two years, when dentistry attracted his attention, and he decided to devote his entire time to its practice. He was a student and partner for a short time of Dr. Amos Westcott, whose influence did much to make him the high-classed operator and mechanic he afterwards became. He moved from Watertown to Rome, where he was associated in practice with Dr. Perkins, and finally to Pulaski, where he practiced four years.

During the winter of 1852-53 he attended the New York College of Dental Surgery, founded by Dr. Amos Westcott, at Syracuse, New York,



W. W. Carpenter

acting in the double capacity of student and demonstrator, and graduated from that institution at its first commencement, March 1, 1853, with the degree of D. D. S. This promising dental college was destroyed by fire in 1855, losing its apparatus, museum, and records, and passed out of existence. With characteristic ambition, he desired a broader field of operation. The West offered promising inducements.

He returned home to round up his affairs, and with his family moved to Chicago, in 1854. His prospects were far from bright; he opened an office on Lake Street, sharing his office with a physician and constructed for himself an operating room, seven feet by eight, in one corner of the reception room. His operating case consisted of a board nailed across the corner and covered with an old issue of the *Chicago Tribune*. He rented an ordinary barber's chair; thus equipped, he began a practice which continued for thirty-five years. The first month of his practice he earned twenty dollars, and thirty-nine dollars the second. The first year he barely made expenses. His perseverance and skill commanded attention, and he soon attained a lucrative practice among the best families of Chicago.

Dr. Allport was an enthusiastic dental society worker; always willing to spend his time and money to promote the interest of his profession. In appreciation of his energy and his ability, many honors were conferred upon him. In 1858 he was elected President of the Western Dental Society. In 1859 he was chosen President of the preliminary convention that organized the American Dental Association, at Niagara Falls, an association he was largely instrumental in organizing. In 1886 he was again elected president of the American Dental Association.

Dr. Allport with others in 1883 was instrumental in organizing the Chicago Dental Infirmary. The idea was to instruct prospective students in both medicine and dentistry with the idea of conferring both the M. D. and D. D. S. degrees on the graduate. There were only three members of the dental faculty, *i. e.*: W. W. Allport, M. D., D. D. S., Professor of Dental Pathology and Therapeutics; George H. Cushing, M. D., D. D. S., Professor of Principles and Practice of Dental Surgery; and L. P. Haskell, D. D. S., Professor of Prosthetic Dentistry and Oral Deformities. This school continued one year, not receiving the support its organizers anticipated, and the name was changed to Chicago College of Dental Surgery, which is still in existence. Dr. Allport was one of the directors of this institution for several years. It was also at his suggestion and mainly through his efforts the Chicago Dental Society was organized in 1864. He was also a charter

member of the Illinois State Dental Society. He was corresponding secretary at the second annual meeting of the American Dental Convention held at New York, 1856, and president of the same at the tenth annual meeting held at Detroit, Mich., 1864. He was a leader in teaching dental diseases in medical colleges in Chicago, and was for many years Emeritus Professor of Dental Surgery in Rush Medical College. As a lecturer he had few equals. He firmly believed dentistry was a specialty of medicine, and was instrumental in the establishment of the chair of Dental and Oral Surgery in seven medical colleges in Chicago.

In 1881 the Rush Medical College of Chicago conferred the honorary degree of M. D. upon him. The medical profession in other ways showed their appreciation of his professional qualifications. He, with E. S. Talbot and T. W. Brophy, was prominent in organizing the section of Dental and Oral Surgery in the American Medical Association, at the meeting held at Richmond, Va., May 3, 1881.

It was largely due to his influence that the dental section of the Ninth International Medical Congress, which met in Washington, 1887, was formed. He was vice-president of the section. In the spring of the same year he succeeded in having a resolution adopted by the American Medical Association, admitting reputable dental graduates to full membership in the Association, thereby qualifying them for admission to the Congress. Until this was done, practitioners of dentistry were debarred from becoming members of the International Medical Congress.

This was overcome at the previous Congress at London, by a subterfuge, which, while well meant and kindly suggested, was distasteful and undignified.

The following resolution of Dr. Allport's was wise and timely, and a very important matter at the time, and that it was so promptly passed is evidence of the respect he commanded in the medical profession.

"Resolved, That the regular graduates of such dental and oral schools and colleges as required of their students a high standard of preliminary or general education, and a term of professional study equal to the best class of the medical colleges of this country, and embrace in their curriculum all the fundamental branches of medicine, differing by substituting practical and clinical instructions in dental and oral medicine and surgery be recognized as members of the regular profession of medicine, and eligible to membership in this Association on the same conditions and subject to the same regulation as other members."

Perhaps the greatest achievement of all that Dr. Allport originated in

society work was the World's Columbian Dental Congress held at Chicago in 1893, which was first started by a resolution introduced and passed by the Southern Dental Association in 1890. He should have the credit of being the originator and the father of this great meeting.

In 1863 Dr. Allport, associated with Dr. S. T. Creighton, originated and became editors of the "People's Dental Journal," published quarterly, at Chicago, by Dr. L. P. Haskell. Its publication ceased after the second volume. The object of this publication was to provide dentists with reading matter pertaining to the teeth, for their patients. After Dr. Creighton's death, Drs. Asa Hill, of Norwalk, Conn., and Joseph Richardson, Terre Haute, Ind., became associate editors with Dr. Allport.

Dr. Allport, was a pleasant speaker and was frequently called upon to deliver addresses at commencement exercises and to respond to toasts and addresses of welcome. He also was a ready writer and frequent contributor to periodic dental literature, and his writings were very much appreciated. They were always to the point, without verbosity. Among the many may be noted his essays upon "Dentistry *vs.* Medicine," "Dental Hygiene," "Irregularity of the Teeth," "The Lower Jaw," "Relations of Medicine to Dentistry," "Replanting of Teeth," "Choice of Therapeutic Filling-Materials," "Causes of Decay of the Teeth," "Diseases of the Teeth," "Trichina Spiralis," "Nourishment of Dentin," "Of the Relation of Dentistry to Medicine," "Filling with Soft Gold," "How Dentists should be educated," "Facial Neuralgia Consequent on Pregnancy;" besides numerous other addresses published in the "Dental News Letter" and the "Dental Cosmos."

In 1860, he read a valuable paper before the Boston Academy of Dental Science in which he advocated a division of practice, and the education of specialties in prosthetic dentistry.

In 1865, at the American Dental Association at Chicago, he outlined his process of treatment of diseased roots that had lost their crowns, upon which he desired to place artificial crowns. At the same meeting he advocated the use of the rubber-dam, first introduced by Dr. Barnum. He was among the first dentists to utilize cohesive gold for the extensive restoration of badly decayed teeth. This fact is established from a society report in the "New York Dental Recorder," Vol. X., No. 8, August, 1856, page 189, in the report of the second annual meeting of the American Dental Convention held at Hope Chapel, New York, August 6, 1856, which reads as follows:

"Dr. Clark, New Orleans, said he had seen a remarkable instance of the use of crystalline gold, by Dr. Allport, where the front incisors were separated

as if a file had been passed between them a quarter of an inch thick, nearly down to the gums. Then the teeth had been built up until their proximal edges almost touched, and they were properly adapted to mastication and had been in use nineteen months. He understood that Dr. Allport used foil in connection with crystalline gold in the same contour.

"Dr. Allport stated that in building up teeth when two sides were standing, he used more cylinder than crystal gold. Every man must use his own judgment. The greatest thing of all in filling teeth was the exercise of common sense."

About this time he performed a unique operation which excited much interest. He removed a portion of the tooth pulp in a molar tooth, dissecting a flap of periosteum and covering the pulp and filling the tooth with gutta-percha. Later he removed the filling and found a deposit of dentin over the pulp. The result he showed to many dentists from time to time for several years.

Dr. Loomis P. Haskell, who was associated for eleven years with Dr. Allport in practice, having the management of the prosthetic works, says: "To the day of his death he was a noted advocate of the use of non-cohesive gold, and had fine taste in the arrangement of teeth for artificial dentures.

"As an operator he was unexcelled, in fact, he seemed to have been made to order for an operator of keen perceptions, he recognized readily the conditions of any given case, decided quickly what was needed to be done, and without any unnecessary delay executed the work thoroughly and with great celerity, being a rapid operator, using very few instruments. Before the days of rubber-dams, mallets or electric motors it was worth going miles to see the celerity with which he changed the little napkins in the mouth. Dr. Allport's life was a busy one. He was eminently a progressive as well as an aggressive man. If he set out to accomplish a thing no matter who stood in the way (and there were those who often did), he triumphed over all oppositions."

"In 1858 he originated the first dental registering ledger with diagrams of the teeth, which is still in use by many dentists, known as the Allport Dental Ledger. In 1868, Dr. Allport became greatly interested in microscopical work, having procured one of the best instruments then in use. The same year he was instrumental in organizing the Chicago Microscopical Club, made up of dentists, physicians, and business men, with a membership at the end of the first year of ninety, and of which he was the first president. Later on a convention was held in a public hall, where was a great display of

instruments and specimens, and an attendance of fifteen hundred. Among the guests were Beck, the London instrument maker, and Professor Leidy, of Philadelphia, who commended his work of organizing the society."

As an individual, Dr. Allport possessed many striking characteristics; he was commanding in appearance, dignified in bearing, perfectly poised and polite, clear in his ideas, and a ready debater. Affable and kind-hearted, he was easily approached, especially by young men of the profession, whom he willingly and cordially encouraged and advised. He has been called "The Young Man's Friend." He thus encouraged several young men who to-day are among the successful practitioners of Chicago. He was a member of Grace Episcopal Church, and a Mason.

December 24, 1847, he married Miss Sarah Maria Haddock, daughter of Samuel Haddock, of Watertown, N. Y. To them were born one daughter, May, and three sons, Frank, Walter H., and Henry W., all of whom are successful physicians in Chicago.

Dr. Allport died March 21, 1893, of meningitis, preceded by erysipelas, and was buried in Graceland Cemetery, Chicago.

To the end of his days Dr. Allport was very ready to learn anything new pertaining to dentistry. New ideas were eagerly sought by him. His earnestness and zeal in promoting, developing and fostering the profession's interest, placed him in a dual position,—"*A strong link binding pioneer to modern dentistry and representing the best elements in both.*"

Dr. C. N. Johnson has aptly said of him: "He was a landmark in his profession—a guideboard with finger pointing in the right direction,—a beacon light that beamed brighter as it burned longer." At a memorial meeting of the Chicago Dental Club, after his death, Dr. Johnson said: "He started life at the bottom of a rough and rugged hill. A stone met his first step. A rock stood towering above his tiny form. But he turned his face resolutely towards the summit, and never lost sight of the star of hope. Thorns were in his path, ready to pierce his quivering flesh. Pebbles rolled beneath his feet. Storms swept down the mountain-side, and threatened to carry him into the depths of the valley below. But baring his breast to the blast, and lifting his brow towards the merest fleck of blue in the darkened canopy above, he never looked behind. When, for a moment, the forces of adverse circumstances drove him struggling to the rear, he regained his lost ground by a burst of that magnificent courage which was his most conspicuous trait. His energies never flagged, his heart was never faint, and toiling on and on, through a lifetime of endeavor, he was at last rewarded by the attain-

ment of a greater height than is given most men to reach. And standing there on the summit of the mountain's highest peak, his heroic form sharply outlined against the limpid blue, he paused for a moment,—a moment all too brief. Looking back over the field of his accomplishments, he saw scattered down the mountain-side the forms of many friends, and as the light began to dim his eyes he waved his hand,—in prophesy and adieu,—and, turning, passed over into the limitless beyond.

“We have nothing left but a memory; but so long as dentistry shall have a name, the individuality of Walter Webb Allport will live beside it.”

The facts contained in this sketch are obtained from “An Historical Sketch: A Pioneer among Western Dentists,” by Dr. Charles Nelson Johnson, Chicago, in the “National Magazine of American History,” February, 1893, Vol. XVII, p. 376, and from Dr. L. P. Haskell, Chicago.

DANIEL HARRINGTON, M. D., D. D. S.

A MECHANICAL GENIUS AND PIONEER INVENTOR AND ORIGINATOR OF THE PLATINUM PIN-HEAD FOR PORCELAIN TEETH.

Daniel Harrington was born in the vicinity of Boston, Mass., in 1776, and commenced his career in life by serving an apprenticeship to the drug business, acquiring at that time an accurate knowledge of drugs and medicine which he retained through his long life. When he attained his manhood he went southward in quest of fortune, settling in Fairfax County, Va., where he engaged in mercantile pursuits until the war with Great Britain, when he embarked in the enterprise of manufacturing cotton goods, with flattering prospects. At the termination of the war, owing to a general depression of business, he, like many other manufacturers throughout the country, became bankrupt. Relinquishing everything he possessed in the world, in the shape of property, his creditors accorded him an honorable discharge from his debts.

Leaving the scene of his misfortunes, he wended his way to Baltimore, to begin life anew, penniless, but with an iron will and indomitable energy that never faltered. Here, after several attempts with indifferent success, he conceived the idea of studying dentistry, possessing, as he did, all the prerequisite qualifications for that profession.

He placed himself under the guidance and instruction of the eminent Dr. Horace H. Hayden, at Baltimore, in 1816, with whom he continued for two years, applying himself with most unremitting energy, in the mean time attending two courses of lectures in the Medical Department of Maryland University, from which he received the degree of M. D. At the termination of his dental pupilage, he made several professional excursions in the interior, for the purpose of acquiring some necessary confidence and experience. He came to Philadelphia in 1818, bearing letters and credentials that gave him an immediate practice in the best families, which soon became extensive and lucrative, and so continued for over thirty years. His first office was at No. 215 Arch Street, and his last office, 1850, at No. 311½ Chestnut Street, both stylish neighborhoods at that time.

On becoming permanently established in his new vocation, he immediately



Daniel Harrington, M. D., D. D., S.

entered with characteristic vigor upon the tasks of liquidating the pecuniary claims held against him by his creditors in Virginia. This effort was continued systematically for several years, until every claim against him, amounting to several thousand dollars, was cancelled to the last dollar.

This gives an example of his integrity and uprightness of character. As a dental operator, Dr. Harrington in his best days, had no superior, with the exception, possibly, of his contemporary, Dr. Edward Hudson, in the art of filling teeth. He was of prompt and unerring judgment in all matters pertaining to the health of the mouth, which became proverbial with those who consulted him. He was endowed with real mechanical and inventive talent.

His mechanical ingenuity is shown by the number of inventions he patented. His first patent was granted while he resided at Centerville, Va., for a "warm bath," and is dated October 4, 1813. His second for an ink holder, April 22, 1831. Then followed a series relating to medical matters. One for means to enable invalids to exercise in their rooms, dated April 23, 1831. Another, dated July 22, 1833, a galvanic device for medical use. January 27, 1834, for the application of galvanism to the surface of the body. March 31, 1835, a second device for using galvanism for the curing of disease; and April 8, 1835, for the application of galvanism to cure salivation. Dr. Harrington, evidently, was not an expert in electrical science as it was at that time. His galvanic devices were as far outside the pale of science, and as inert, as is the more modern galvanic ring or the electrical tooth-brush, warranted to arrest dental decay and restore the organs to their primal beauty and usefulness. One of his devices consisted of two metallic vessels shaped to conform to the body and capable of holding hot water, connected by a metallic conductor, and covered by several folds of flannel. The vessels were to be filled with hot water, the surface of flannel which came in contact with the body saturated with salt water to facilitate the passage of the galvanic current, and the apparatus then applied to the diseased spot. It no doubt was, in many cases, effective; quite as much so as is the modern hot-water bottle made of india rubber, and owed its efficiency to the same cause.

His next patent was for a device to save account books, valuables, etc., from destruction by fire, a sort of "fire-proof safe," but made of wood. It calls for the constitution of a brick vault built up from the cellar to the floor upon which the safe is located, and provided with strong iron doors. The safe in which the valuables are stored may be of wood, and is so suspended over this vault that in case of a fire, before the safe or its contents are at

all injured, it automatically drops down to the bottom of the vault, and sets in operation mechanism by which the doors cover the top of the vault and so protect the safe from fire, or injury from falling walls, etc. This patent is dated March 2, 1836.

His next patent is of much more interest to us as dentists, and has proved far more useful than any of the others. It is dated June 18, 1840, and covers the heads upon platinum pins in porcelain teeth. The first platinum pins were straight pieces of platinum wire with the end which entered the porcelain slightly corrugated or roughened. They pulled out. The staple pin followed, the two pins made of one piece of wire bent U-shape. It was not a success. While they did not pull out as did the others, they often were not firm; during soldering the mass of metal by its expansion fractured the porcelain, and not infrequently when subjected to strain, on account of not being deeply embedded in the porcelain, they came off, bringing a portion of porcelain with them. This patent called for a headed pin, and as later modified solved the problem. The first heads were made round and solid. While they prevented the pins drawing out, the mass of metal caused fracture of the tooth during soldering. This was overcome by making the pin heads flat, or concave, so that while there was an enlargement of the metal quite sufficient to prevent the pin drawing out, it was not in sufficient bulk to cause any injury by expansion during soldering. This was Dr. Harrington's best service to his profession, and is explained fully in the following copy from the patent records:

"Daniel Harrington, Philadelphia, Pennsylvania, Letters Patent No. 1884.

"Dated December 10, 1840, antedated June 18, 1840.

"The schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN. Be it known that I, Daniel Harrington, in the city of Philadelphia, and State of Pennsylvania, have invented a new and improved mode of strengthening the connection between porcelain, or mineral teeth and the rivets by which they are attached to metal in bars, plates, springs, etc., and thence adapted to the human mouth, and I do hereby declare that the following is a full and exact description.

"The nature of my invention and improvement consists in combining with mineral, or porcelain teeth (as well as other articles made from earthy or mineral substances) platina rivets made with pressed up heads—like the heads of common wood screws, their heads being either semi-circular or flat upon either the upper or under side, or both, leaving out the slit or groove common to such screw heads, but more perfectly like the pressed up heads of the solid head brass pins now in common use for pinning wearing apparel (one of these pin heads with one-sixth of an inch of its shank attached to it and made of wire the twenty-fourth part of an inch in diameter, would exactly

represent my rivet for common-sized teeth). See accompanying specimens and drawings, Figs. a, b, bb, e, etc., etc.

"These rivets in their combination have their head ends inserted into the teeth (and their shank, or small ends left out) while the teeth are forming from the mineral ingredients in their soft state, and are then burnt in while the composition is becoming porcelain teeth, or solid by the burning process in a manner similar to that by which manufacturers of such teeth, in general, in the United States, have for years past inserted platina rivets of other forms into their teeth.

"One advantage arising from my improvements consists in giving a great increase of strength to the attachment between the rivets and the teeth and of consequence, a similar increase of strength between the teeth and the metallic bars, etc., by which they are adapted to the human mouth because of their pressed up pin-form heads burnt in, etc., and being the best possible form that can be adapted to the purpose.

• Another advantage arising from this form of rivet is, that it will endure the force of the riveting hammer when forming a head on the outer end with far less liability to fracture the tooth, and this because of the peculiar form of head embedded in the body of the tooth, etc., than the usual flat end, or chisel form platina rivet—which from its chisel form is not only more liable to fracture the tooth under the force of the riveting hammer, but can be drawn out with much less force, of consequence cannot embrace the same degree of strength.

"These pin-head rivets can be made by the common (wood) screw, pinmaking or brass wire tack (with pin head) making machines now in existence use in the United States, dispensing with the pointing parts of said machines—and the teeth can be made in the ordinary way, or as dentists in general manufacture them—the apparatus being of proper sizes.

"CLAIM: What I claim as my invention and improvement and wish to secure by Letters Patent, is the exclusive privilege of making and applying to or combining with mineral or porcelain and other articles made from earthy or mineral substances by burning, the above described screw-head or pin-head form of rivets pressed up by mechanical force or weight as to their head ends, and cut off square, or at a perfect right angle, at their small ends, and of course the exclusive privilege of vending said articles in the United States of America, that is, mineral or porcelain teeth, etc., having my pin form head rivets. I also make and combine with porcelain or mineral teeth (being my invention and improvement) staple form rivets of platina, the curved or connected ends of the staple being burnt in as above described of the pin head form rivets. These platina staples can be made by the aid of common pliers, but I give the preference to the rivets first described above. Yet I claim this latter invention and improvement.

"DANIEL HARRINGTON.

"Witnesses:

"JOHN BINNS,

"WM. PATTEN."

In the adoption of artificial teeth according to the old methods, using the teeth of sea-horse, ivory, calves, and human teeth, he was an adept as he was in the manufacture of early mineral teeth.

October 11, 1841, he patented a thief proof pocket. The surface of the pocket was to be covered with a fine metallic chain or metallic buttons, or quilted with metallic wire, and one or more strands of chain carried from the pocket to other parts of the dress or garment. This he suggested, would make more difficult any attempt to cut into the pocket, and would prevent its being carried away.

September 2, 1845, he patented a pen guard, a shield sliding upon the penholder for the double purpose of preventing the pen being too deeply immersed in the ink, and for preventing the ink soiling the fingers. This idea has frequently been revived, and has survived to the present.

The last patent so far found to his credit is dated September 2, 1845, and is for an ink-stand.

When the dental profession organized in Philadelphia, in the fall of 1845, it was emphatically a young men's movement, but few of the older practitioners taking any active part. The first act of the new society, "The Pennsylvania Association of Dental Surgeons," after it had fully completed its organization and provided for its immediate needs, was to elect Professor Chapin A. Harris and Dr. Daniel Harrington honorary members. This shows the esteem in which he was held by the rising members of the profession in Philadelphia. The Baltimore College of Dental Surgery, also recognizing his professional attainments, conferred the honorary degree of Doctor of Dental Surgery upon him in 1841.

He contributed only one article to our literature. It described "An extraordinary case of fungus of the inferior maxillary," successfully treated by him in 1843-44, and published in the "American Journal of Dental Science," (Vol. VI, June, 1846, page 291).

This was a remarkable case, in all probability without a parallel in the records of surgery. It came under the care of Dr. Harrington after having been abandoned and pronounced hopeless by the highest surgical authorities in Philadelphia.

In treating the case, in order to have it under his constant supervision, he had the patient, with her attendant, brought to his house, where she remained four months. The treatment continued throughout one year before the cure was completed. The patient was in humble circumstances, and Dr. Harrington neither received fee nor reward for his services, excepting the consciousness of having performed a kindly action with the lasting gratitude of his patient and her family.

In person Dr. Harrington was under medium stature, but dignified and

prepossessing in appearance and of great earnestness and energy of purpose and action. He was, with all, a religious and pious man. His manners were exceedingly bland. He was a gentleman of the old school; never failing to secure the respect of those who approached him, and to return it.

He retired from practice in 1850, and removed to Brooklyn, N. Y., where he had strong domestic ties and where he spent the last years of his life, until his death, at the age of eighty years, which occurred January 4, 1856. "Dr. Daniel Harrington was one of the pioneers who, for more than thirty years upheld the honor of the profession. Eminently distinguished alike for his high professional attainments, his unwavering integrity, and for a uniform high-toned, gentlemanly deportment," says the Committee of Resolutions on his death, of the Pennsylvania Association of Dental Surgeons.

The facts contained in this sketch were obtained from "The Dental News Letter," April, 1856, Vol. IX., page 169; Dr. William H. Trueman, Philadelphia, and Henry M. Lewis, Manager S. S. White Dental Manufacturing Company, Philadelphia.

JOSHUA TUCKER, M. D.

A PIONEER OF BOSTON, AN EARLY EXPERIMENTER IN THE MANUFACTURE OF PORCELAIN TEETH, AND AN ADVOCATE OF ALL GOLD AS A FILLING-MATERIAL.

Joshua Tucker was born at Winchendon, Massachusetts, August 7, 1800. He was the son of Seth Tucker, a farmer, a soldier in the war of the Revolution and one of the earliest settlers of the town. His mother was Miss Jane Payson. As he reached manhood life on the farm grew monotonous and he began to long for an occupation other than following the plough and swinging the scythes and for a wider acquaintance with men and affairs than he could acquire in an obscure country village. So with what small means he could gain by his own labor at the age of eighteen he entered an academy at Hampton, N. H., and about 1823 was qualified to assume a position as a teacher.

In early life young Tucker was a teacher in penmanship and a most accomplished penman, which, no doubt, did much to train his hand and nerve and led him to excel in dentistry. He also did excellent work in pen and ink drawings. One of the best specimens of his work is a picture of Lafayette, executed during Lafayette's visit to America in 1825.

Learning that there was a better field for enterprising teachers in the Southern States than in the North, he resolved to visit that section, and after a nine days' voyage landed at Savannah, Ga., in the autumn of 1825, with no friends to assist him and with only a few dollars in his purse, but full of courage, energy and self reliance.

Immediately on his arrival, he introduced himself to Rev. Mr. White, Principal of the Savannah Academy, made known his plans and wishes, and found in him not only an employer but a warm friend. After a pleasant and profitable winter spent in teaching in this academy, he was advised by Mr. White to go back into the hill regions for the summer, and so went first to Athens, Ga., with letters of introduction to the professors of the college, where he remained some time teaching and making many acquaintances, who, long years after, remembered and visited him in Boston. From Athens he went to Columbia, S. C. Here he met Dr. D. C. Ambler, a successful



Joshua Tucker.

dentist and cultivated gentleman, who advised him to study for the profession which he afterwards practiced and honored for so many years.

In accordance with Dr. Ambler's advice, he spent a term at the South Carolina Medical College at Charleston, S. C., and then, returning to Columbia, remained some months in Dr. Ambler's office, till he was qualified, in the opinion of his friend, to begin practice by himself, which he did in 1827 at Sumterville, S. C. He commenced as young dentists in those days generally did—travelling from place to place, stopping a few days and then journeying on. He travelled in a two-wheeled chaise over a large part of South Carolina. In the course of these wanderings he occasionally saw operations which he felt were better than he could perform himself, which came from the office of Dr. C. Starr Brewster, of Charleston, S. C. Young Tucker resolved when he entered the profession to let no opportunity pass to perfect himself in it; so he abandoned for a time a practice which was already becoming lucrative, and repairing to the office of Dr. Brewster, became once more a pupil. Hard and conscientious study and practice enabled him to so satisfy his instructor that when the latter went North on a visit he left Dr. Tucker in sole charge of his office and patients.

During Dr. Brewster's absence, Dr. Tucker's attention was called to Cuba as a promising field for American dentists, and immediately upon being released from attention to Dr. Brewster's office he began the study of Spanish, little appreciating the difficulties of practice in a foreign country, and in 1829 left Charleston for Havana. He was somewhat taken aback on his arrival at finding that he could not practice his profession without submitting to an examination by the Protomediciado of the Faculty of the College of Medicine. After some weeks of anxiety, however, he passed the ordeal safely, receiving his diploma, submitted with tolerably good grace to the congratulatory embraces of a dozen or more doctors who were present, and became entitled to all privileges of a Spanish physician.

Three years' residence in Havana made Dr. Tucker proficient in the Spanish language and gave him an extensive practice. In 1833 the cholera visited the island and raged fearfully, and he decided to visit Massachusetts for a short vacation, intending to return to Cuba upon the cessation of the epidemic.

When he reached Boston his plans were soon changed. He was introduced to Dr. Daniel Harwood, who complimented him upon some of his work which had passed under his inspection, and finding him inclined to remain in Boston, offered him a partnership in his business. This generous and unex-

pected offer was accepted after serious reflection, and the name of Harwood & Tucker remained associated for many years, indeed until the ill health of Dr. Harwood made a dissolution of the firm necessary. The mutual trust and cordial feelings which had existed between the two partners continued during their lives.

While Dr. Tucker was in the office of Dr. Brewster at Charleston, he devoted himself principally to the mechanical department of the business, and purchased Dr. Brewster's receipt for making porcelain teeth. Afterwards he found Dr. Ambler, his old friend and instructor, in New York, an expert in the manufacture of porcelain teeth, and obtained his method. Drs. Harwood and Tucker were the first to manufacture and introduce these teeth in Boston. Finding them, however, unsatisfactory, they succeeded after long and tedious experiments with new material in producing teeth from quartz that were a perfect imitation of natural teeth, and they were among the first to manufacture and introduce quartz teeth in this country.

In a sketch on "Reminiscences of Dentistry," written in 1880 by Dr. Tucker, he recites the following concerning his early experiences and experiments:

"Previous to the time of Drs. Flagg and Harwood, dentists devoted their time principally to the manufacture and adaptation of artificial teeth. For pivot teeth they used chiefly human, and, as a substitute, cow's teeth, provided they were sufficiently old to have the pulp cavity closed with bone. They also carved single teeth, and sections of teeth from the ivory of the hippopotamus and stained the gums with a pink or red color. For full or entire sets they used true ivory for the base, carving the bicuspid and molars on the same piece, but for the front teeth they used human or cow's teeth pivoted to the ivory base, staining the gums red. These substitutes, unfortunately, would in a few years turn blue, and the animal matter in the bone would become offensive, producing a fetid breath.

"About this time French porcelain teeth were introduced into this country, but they were opaque and faulty, both in shape and in color. Still they stimulated the progressive dentist to experiment, to imitate and improve upon the French teeth.

"About this time French porcelain teeth were introduced into this country, commenced the manufacture of porcelain teeth from kaolin and feldspar. He soon made improvements and furnished me with his teeth during my three years in Havana. On my return home from the latter city I visited Charleston, bought his recipe, and again became his pupil in his method of making

porcelain teeth. I brought some pivot teeth of my own manufacture to Boston, and Dr. Harwood engrafted one of these crowns on to a root. This was the first porcelain tooth used in Boston that was manufactured in this country. I returned from Havana to Boston in 1833 and found there in active practice Drs. Josiah F. Flagg, Harwood and Lane, J. Randall, N. C. Keep, Thomas Parsons, S. A. Bemis, E. S. Greenwood and S. A. Barnes.

"While absent from Boston on a visit to my native town, Dr. Lane, the partner of Dr. Harwood, died. Shortly after this, being introduced to Dr. Harwood, we became associated as Harwood & Tucker. Though strangers up to this time, we were born and reared on farms in neighboring towns in Worcester county, myself born in Winchendon in the year 1800, and Dr. Harwood in Barre, in the year 1801. As young men we had till now traveled in different directions, Dr. Harwood, East, and practised in the British province of New Brunswick at St. Johns, while I went South and practised in the Spanish province of Cuba at Havana.

"Our partnership being established in 1833, we at once commenced the manufacture of porcelain teeth from kaolin and feldspar, but were disappointed in results. At my request Dr. Brewster visited Boston and gave us his aid. Still his teeth failed to satisfy us, as we could not make good imitations of the natural teeth. I next went to New York and bought recipes of my first instructor in dentistry, Dr. D. C. Ambler, and was taught his method of manufacture. I also bought recipes of Dr. Lovejoy, and his method, returning to Boston with added knowledge and high expectations. Notwithstanding all these additions we still failed to produce satisfactory imitations of the natural teeth and now commenced the real struggle. Being determined if possible to realize success, we experimented for months, and oftentimes were at work over the furnace late at night. At last after many experiments, long perseverance and great patience we were rewarded with success. We had finally discovered that the body of the teeth could be made of quartz, kaolin, and feldspar, and colored yellow with titanium. These materials we mixed and ground between a slab and a muller of quartz. The enamel was composed of feldspar and flux of chalk, colored with platina, which gave a grayish tinge of blue. In the manufacture of pivot or single teeth, two-thirds of the length or upper part was moulded from the yellow body, and the remaining third, or point of the tooth, of white and enamelled with a tinge of blue by platina. For blocks or entire sets, the gums and teeth were moulded to the plate, the gums and upper part of the yellow body, and points with white. The teeth were enameled with platina blue, and the gum with a preparation

of gold. By fusion in the muffle or furnace, these colors would blend, and give a fleshy color to the gums, a greenish yellow to the upper part of the teeth, and a pearly blue to the points, producing an almost perfect imitation of the natural teeth and gums, with a translucency similar to that of living teeth. When whole or partial sets were moulded and carved with artistic taste and skill, the dentist was enabled to give character and natural expression to the face by good imitations of the lost teeth.

"We consider it important to remark as an historical fact that Harwood and myself were the first to produce translucent mineral teeth from quartz and feldspar in this country in the year 1834. Also the first to make laboratory work a specialty, introducing into this department an ingenious workman, W. W. Codman, where he continued many years, and with him later his brother Benjamin, as assistant. Finally both studied dentistry, graduated in medicine, and afterwards practised dentistry in Boston. Later Benjamin S. Codman entered business as the head of the firm of Codman & Shurtleff.

"Henry Jordan was successor to the Drs. Codman in the laboratory. He soon developed superior taste and skill in carving, doing away with the usual set and artificial look of mineral teeth and very perfectly imitating the natural teeth. Dr. Jordan also acquired a medical degree, and in the last years of his life was associated with me in the practice of dentistry.

"In this age of our profession it may not be uninteresting to the younger brethren to learn something of the methods of teaching dentistry forty or fifty years ago when dental colleges and text books had as yet no existence.

"The first students educated by Harwood and Tucker were my brother, E. G. Tucker, M. D., who practised in Boston, and Elbridge Bacon, M. D., nephew of Dr. Harwood, who practised in Portland, Me. When they entered our office, then at No. 4 Hamilton Place, Boston, to lay a good foundation for a future thorough knowledge of dentistry, they were first introduced into the laboratory, handed the blow-pipe, hammer, and file, and were taught to copy, fashion, make and temper their own instruments. This was to improve their mechanical skill, and educate the hand equally with the head. They were also taught to carve and manufacture mineral teeth, and the rules and art of modeling, so as to give natural expression to the face. Lastly, they were taught to use the instruments they had made, to manipulate and pack gold foil against the walls of the dental cavity so as to completely stop exudation from within, and ingress from without, and then to restore carious teeth

to health. We insisted upon their studying at the same time the science of medicine generally.

"Regarding the old method of filling teeth, in the second quarter of the present century, even then, in the childhood of the profession, the educated dentist understood that in the normal organization of the teeth, the dentine was everywhere ramified by the tubuli; he also understood that there was an internal organization which secreted a white osseous fluid from the red, or arterial blood of the pulp, and that this white fluid circulated through the dental tube, giving health and growth to the dentine; but if health was disturbed by caries, the fluids exuded or leaked into the cavity, and the caries, if not stopped, would continue until the pulp was reached, and the result would be death to the tooth.

"As the dentist could not apply the ligature to the ends of the tubes as the surgeon can to divide arteries, he was obliged to stop the exudation by the skillful manipulation of gold foil within the cavity, first thoroughly excavated of all carious bone. In this early age of dentistry we had many difficulties to overcome in the use of gold, and especially with the manufacture of gold foil. It took many years for the gold-beaters to comprehend the wants of the dentist in the quality of gold foil necessary to manipulate and pack successfully against the walls of the cavity. It was very difficult to educate them to understand the intermediate qualities of foil between that which was *too sticky*, now called cohesive, and that which was *too dry*, now called non-cohesive.

"Finally, after many years of patient drilling and experiments, the gold-beaters succeeded in producing foil that was soft, semiplastic, and which proved satisfactory to the profession.

"After the proper quality of gold was obtained, to shape the cavity for stopping on scientific principles was considered of the utmost importance to successful dentistry. Cavities were prepared by cutting straight or perpendicular walls, having the same diameter in every direction, from the orifice to the bottom, care always being taken to avoid an undercut. If either way the cavity was varied from the upright wall, it was enlarged at the orifice, carving a straight level to the bottom so that the foil would adhere to the walls by reason of more direct pressure, on the principle of an inverted hollow cone when filled in from the base, wedges equally against the surrounding surface by pressure.

"Foil was made into pellets by being cut into parallelograms one-third longer than wide, but varying in size according to the size of the cavity

These pieces were crimped between the thumb and forefinger with piers, the end then doubled together, and the whole rolled into a soft pear-shaped pellet, which prevented two flat surfaces from coming in contact. For a central incisor the pellets were introduced into the cavity with piers, the first pellet the largest, and manipulated with a proper shaped instrument so as to carry the pellet direct to the wall. The greatest care, however, was taken not to move the pellet or particles from the position in which they were first placed. At times it was well to hold the first pellet in place with an instrument in the left hand, till another pellet was introduced to hold it in position. Smaller pellets were next introduced with piers, with lateral pressure to each pellet, and so on till the cavity was filled and packed to the wall in all directions with equal density, the pellets standing like uncut leaves between the covers of a book. Then with pointed instruments, the protruding ends were drawn under the enamel edge and forced outward to the walls of the cavity by lateral pressure, and so condensed as to produce as solid a surface as possible, and well burnished to the enamel at the orifice of the cavity. Contour fillings were avoided by filling the gold straight across, even with the enamel so that the patient could polish the enamel equally with the gold. For teeth carious in crowns as well as mesial and distal surfaces, the shaping of the cavities and introduction of the gold were the same as in manner just described. Likewise care was taken by the pioneers of this method to avoid hard pressure or a blow on the foil at the bottom of the cavity, but with firm and equal pressure to force the pellets outward to the wall and leave them there semi-condensed. By these treatments the pellets would adhere to the dentine and ends of the tubes, acting as a dam to the waste of the circulating fluids of the teeth, and soon the fluids would ossify against the gold of the filled cavity, solidifying the ends of the tubes, and making an impervious union between the tooth and the gold. This is proved when we have occasion to remove a stopping of thirty or forty years. We then often find particles of gold adhering to and nearly covering the floor of the cavity.

"The observant dentist who has stopped teeth with oxychloride of zinc is familiar with the fact that the particles being fine and free permeate all indentations, and perfectly seal the ends of the dental tubes. If removed in six months or more afterwards, he finds ossification at the ends of the tubes, the nervous sensibility lost, and the dentine solid to the touch of the excavator.

"In my early years I soon discovered that if I left an under-cut and filled the cavity, it would in time prove a failure. Also if I used foil that was too

sticky, or cohesive, or too *dry*, or non-cohesive, in a few years there would be a change of color back of the gold and failure would result. If I failed to stop or seal all of the ends of the dental tubes, the circulating fluids of the tooth would leak and accumulate back of the gold, and by chemical reaction become abnormal and disintegrate the dentin, and in five or six years caries would work its way externally, and so cause another failure. The old system of practice in filling teeth was on the principle of pushing a cork into a cavity, or neck of a bottle, which stops the leak of fluids more completely than a hard stopper would, even if forced in with a mallet. As an important aid to success I attached great importance to cleanliness and care of the teeth by patients and endeavored to educate them intelligently in their own duty as to the best mode of treatment. I sought to convince my patients that the surface of the teeth most brushed or polished were the best preserved, as may be seen when surfaces are worn by use. Also I would show and explain to them that the surfaces not brushed or polished were the first to become diseased, as may be seen in central grooves of molars, bicuspid, and between the teeth generally. As another aid in the preservation of teeth, I have attached much value to the remedial properties of tannin as a wash for the mouth and teeth. In 1838 a young man called for consultation and examination of his teeth. His incisors were carious from the gums to half the labial surfaces, and too superficial to fill. In 1840 the young man called again, and much to my surprise on a second examination of his teeth I found the former caries had sloughed away, and in its place was a glassy or semi-vitreous surface. I questioned him as to his habits, and he said that he worked in a tan-yard, and was continually chewing oak bark. I remarked to him that this new condition of his teeth was brought about by the same law by which skins in the tan-vat were converted into leather, and both derived this change from the affinity of tannin with gelatin.

"In the year 1840 I requested a chemist, Mr. Theodore Metcalf, to prepare a wash from oak bark for my patients, a preparation which he afterwards sold under the name of "Oak Tooth Wash." This was the original introduction of tannin to the profession for the uses set forth. I also find tannin to be the active principle in a modern retudent. The oak tooth wash can be easily and cheaply prepared by putting a half-teaspoonful of crystallized tannin into a tumbler of water. Its use night and morning retard caries, is healing to the gums and exposed dentin, purifying the breath."

As a condition of their partnership Dr. Harwood, believing a dentist should have a good medical education, required Dr. Tucker upon his return

to Boston to study with Dr. McKean and attend the usual medical lectures. He graduated from the medical school at Geneva, New York, after a short course, in 1835, and received the customary diploma, and became a member of the Massachusetts Medical Society.

The firm of Harwood & Tucker had several pupils who were invariably required to secure a good medical education before commencing the practice of dentistry. Among these were Joseph H. Foster, of New York; E. G. Tucker, of New York, and later of Boston (a younger brother of Joshua Tucker); Elbridge Bacon, of Portland, Me.; Dr. Sumner, of Providence, R. I., and Edward Gage, of Paris, France.

After Dr. Harwood retired from the firm, Dr. Tucker invited his brother, E. G. Tucker, of New York, to become his partner, and they were thus associated for years. Edward Gage was their pupil, and was for several years one of the successful American dentists in Paris.

Severe facial neuralgia compelled Dr. Tucker to withdraw from practice for a time, and in 1854 he went abroad and remained about two years, visiting the principal cities of England and on the Continent. While away he left his patients in charge of E. T. Wilson, M. D.

On Dr. Tucker's return from Europe, he resumed practice at No. 4 Hamilton Place, Boston, where the old firm of Harwood & Tucker was first established, and where he remained till 1871, a period of thirty-five years, when he and his associates, Drs. Moffatt and L. D. Shepard, removed to Hotel Boylston, where they remained until 1876.

Dr. Henry Jordan was associated with Dr. Tucker from 1848 to the time of his death, and had charge of the mechanical department. He was a gentleman of rare qualities, a true artist in the branch to which he devoted himself.

Among the professional honors which Dr. Tucker has received should be mentioned his election as an honorary member of the Odontological Society of Great Britain in 1859, and to the Presidency of the American Academy of Dental Science, of Boston, a position to which he was elected as successor to his old friend, Dr. Harwood. He was a member of numerous other professional societies.

Dr. Tucker was highly respected by his fellow practitioners. At the close of the first half of the last century, contemporaneous with him in the practice of dentistry in Boston were Drs. Josiah F. Flagg, Daniel Harwood, John Randall, N. C. Keep, E. L. Greenwood, S. A. Bemis, E. G. Tucker, D. M. Parker, J. L. Williams, A. F. Preston, S. F. Stearns, C. Eastman, E. G.

Leach, J. Clough, W. W. Codman, Benjamin S. Codman, W. T. G. Morton, I. A. Salmon, J. A. Cummings, D. K. Hitchcock, U. K. Mayo, G. S. Waters, T. W. Parson, Jr., P. R. Ridgway, R. L. Robbins, and A. Guild.

Dr. Tucker's last student was Dr. George T. Moffatt, who began his studies in 1857, and graduated at the Harvard Medical School in 1860. Their association continued a period of more than nineteen years. Dr. Moffatt held the chair of Operative Dentistry in the Dental School of Harvard University, and was President of the Massachusetts Dental Society.

The reputation of Dr. Tucker as an able and thorough practitioner was well known through the entire country for many years.

Probably his last appearance before his professional brethren was at a meeting of the American Dental Association held at Boston August 4, 1880, when, tottering from feebleness, he was led upon the platform and made an interesting and instructive address upon the use of non-cohesive gold foil in filling teeth. He strongly urged caution in laying aside old and proved methods for the new and untried. In closing, he feelingly referred to his long professional career, which he felt was near its close. He was listened to with marked attention. As he left the platform many crowded around him to shake hands and say "good-bye," feeling as they did so that it was for the last time, and so it proved. (For *resume* of his remarks, see "Transactions of American Dental Association," Twentieth Annual Session, page 70.)

In 1839 Dr. Tucker married Miss Susan L. Morse, youngest daughter of Isaac Morse, Esq., of Winchendon. She died in 1897. They had no children.

After the close of his professional career, Dr. Tucker passed some years in honored retirement. He died at Winchendon, Massachusetts, the town of his birth, on November 7, 1881, and was buried in Riverside Cemetery, Winchendon.

As a man, Dr. Tucker was sturdily honest; in his bearing genial, courteous, considerate, and sympathetic. His kindly firmness of manner at the chair was most reassuring, and inspired his patients with abundant courage.

Always watchful for opportunities for usefulness to others, the number whom he benefited by his kindly interest and intervention was an increasing one so long as he lived, and his memory still endures in their grateful remembrance.

The principal facts contained in this sketch were obtained from Mr. Asabul M. Shurtleff, of Boston, and from Dr. L. D. Shepard, of Boston, both intimate acquaintances of Dr. Tucker.

DANIEL HARWOOD, M. D., D. D. S.

AN EARLY PRACTITIONER OF BOSTON, WHO DID MUCH TO PERFECT THE MANUFACTURE OF PORCELAIN TEETH.

The subject of this sketch was born at Barre, Massachusetts, March 21, 1801. He was the eldest child of Peter and Prudence P. Harwood, substantial farmer folk of Worcester County, known as "the heart of the commonwealth," both for its agricultural and intrinsic value.

He lived on the farm, pursuing its avocations, and attending the town school as he had opportunity, until he was about 18 years of age, inheriting a robust constitution and a thirst for a better education than was afforded there to meet his aspiration for something better than farm life that he felt himself capable of. He was anxious to fit himself for a professional life and have an education to correspond. It was finally decided to send him to Leicester Academy, Leicester, Mass., to fit him for college. He took kindly to his new life, pursued his studies with avidity and credit, had for his classmates, among others, Rev. Dr. Putnam, who afterward for many years presided over a parish in Roxbury, Mass., and Rev. Dr. Thompson, who afterward had charge of a parish in Barre, Mass.

But the life of his youthful aspirations, opening so buoyantly, was of comparatively short duration. Before the close of his second year he had an attack of typhoid fever which closed his studies at the school and very nearly closed his life also. He never returned to the school again. But his experience there stimulated a desire for a higher education and encouraged his ambition for higher aims in life.

He had a strong inclination for a professional life and chose that of a physician, with surgery as a specialty. He went to Northampton, Mass., and studied with Dr. Lewis L. Miller, who recognizing his ability and aptness and having a large field in the surrounding towns for his practice—offered him a partnership in his business. This lasted satisfactorily for a year or so. But his ambition for a higher education and wider field for the exercise of the ability he felt he possessed, prompted him to go to Portland, Maine, and see what the chance was there. He soon formed exceedingly pleasant



Daniel Harwood

and lasting acquaintances there and acquired a satisfactory practice. Dr. Prentiss, the leading dentist in Maine at that time, became his fast friend, and soon learned his skill and aptness for his profession as well as his great ability in it, and suggested to him as well as to his friends, his remarkable adaptability for a dentist, and that the field being so wide and occupied by so few skilled practitioners, it was almost his duty to enter it. This view was so earnestly enforced by his friends in the city, especially Neal Dow, the great apostle of temperance, Pitt Fessenden (later, Maine's famous Senator) and others that he was forced to give some heed to them, and the result was that he concluded, much against his own desire, to adopt their conclusions, thus opening a comparatively new life before him. He decided at once to enter Bowdoin Medical College, Brunswick, Maine, and after concluding his studies, on graduation he returned to Portland, with his medical diploma and very little else except an indomitable determination to succeed. On his return to Portland he became associated with Dr. Prentiss, his preceptor, one of the most skillful operators in the profession. After a year or more with Dr. Prentiss "to get his hand in," he concluded to go into the British Provinces and practice awhile alone, as Boston and Portland were well equipped with operators, and he had not "tried himself" yet. A year sufficed for this experiment which was passed in St. Johns, Fredericton and Halifax. In the St. John (N. B.), "Courier," July 23, 1825, appears the following dental advertisement:

"The subscriber respectfully gives notice to the ladies and gentlemen of St. John that he is ever ready to attend to the various operations on the teeth. Whole and half sets with spiral fastenings, furnished at the shortest notice. Inquire at the home of Mr. Henry Hannigar, corner Germain and Princess streets,—Daniel Harwood."

In 1825 the medical men of this province must have had an examining board and any man who advertised himself as doctor must have been required to pass it, as the following advertisement will show:

"Dental Surgery:—Dr. Harwood (late of the Boston Medical Society) having undergone an examination before the Medical Board of New Brunswick, and being licensed by His Excellency, Sir Howard D. Douglas to practice in this province as surgeon-dentist, respectfully tenders his personal services to all who may have occasion for them. Application to be made at his rooms in the Parish of Portland, house of Mr. J. P. Payne. St. John, December 3rd, 1825. Mr. Payne's house is situated below Long Wharf."

He returned to Portland a year or so later, laden with many letters of

recommendation from the government officials, judges and most distinguished citizens of the places he visited, and well contented to settle down to the business he was satisfied he was so thorough master of. Not long after his return to Portland just the opportunity offered that fitted his case. Dr. Josiah F. Flagg, of Boston, at the head of his profession there, broke his arm, thus disabling him from serving his patients professionally, and having heard of Dr. Harwood's skill, sent to know if he could come to that city and care for his patients during his incapacity. Dr. Harwood went at once and the experience he acquired of the city as a place in which to locate professionally was invaluable. He returned to Portland soon after Dr. Flagg's recovery, closed up his business and removed to Boston, and invited Dr. Lane, a skillful operator with whom he had become acquainted during his connection with Dr. Flagg, to join him professionally. This connection lasted during the life time of Dr. Lane, very pleasantly and profitably. Not long after this Dr. Joshua Tucker, whose biography precedes this, returned from the South and called to see Dr. Harwood, and requested to be associated with him professionally. But Dr. Harwood would receive no one as a partner who had not passed the medical examination and possessed a medical degree. So Dr. Tucker entered medical school and after graduating Dr. Harwood received him as a partner under the firm name of Harwood and Tucker. These two were known for years as the leading dentists of Boston, and this connection lasted until Dr. Harwood was compelled, from ill health, in 1840, to retire for a while from his professional business, and go into Eastern Maine to recuperate, and look after some mill property he owned there. He spent some six years in that business, at the same time practicing medicine with success. With restored health he returned to Boston again to enter active practice and attain the highest professional standing. He retired from active practice after the Boston fire in 1873.

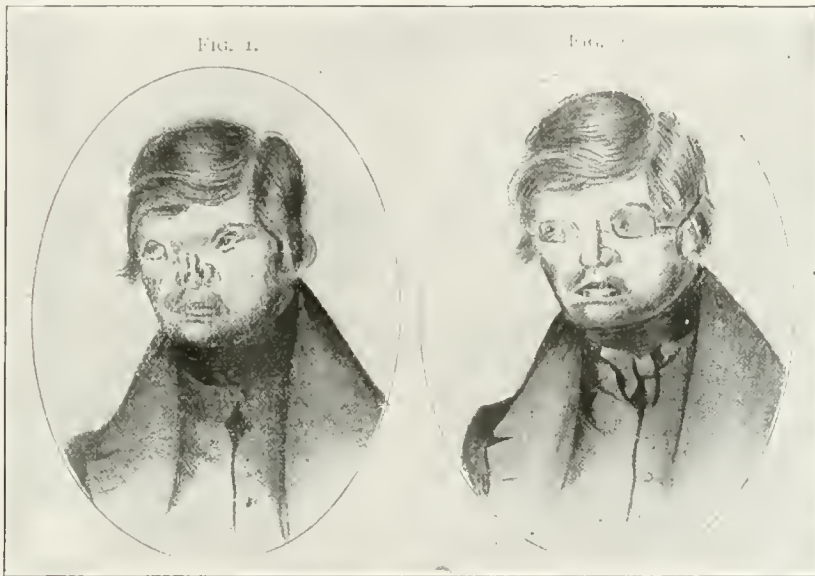
He was an independent thinker, was uncommonly ingenious, possessed marked ability in the use of his fingers, which undoubtedly led him to look higher than the farm life for his future efforts. When a lad he would break any of his playthings, instead of crying over it as children are apt to do, he would say, "Well, no matter, I can repair it or make another." He very early developed a confidence in his ability to do which in later life was worth much to him. He often said, "Anything my brain can think out my hands can make." A strong characteristic was his great fertility in expedients. He felt he could work his way out of almost any difficulty. He was never discouraged.

An idea that once possessed him as possible of accomplishment, and

worthy of attempt, enlisted his efforts until the problem was solved, or his inability to master it was evident. This was never more markedly demonstrated perhaps than when he succeeded, after long and persistent efforts, and many discouragements, entirely unaided so far as the vital process was concerned, in his invention of the material from which artificial teeth have since been made, affording a great saving of time, labor, expense and accuracy in the manufacture. He had willing hands in his partner and his laboratory employes in the mechanical department of the work. Dr. Joshua Tucker, before he became associated with him as partner, had purchased two recipes for the manufacture of artificial teeth. Dr. Harwood tried both, but neither of them met his requirements. In 1834, he, however, commenced experimenting for himself, which resulted in the success that attended his inventive efforts. When he had succeeded in producing a mixture that was entirely satisfactory to him for the manufacture of teeth, there was still one serious deficiency that he felt must be remedied before the work could be considered perfect, and that was the dead white unnatural look of the teeth, instead of the live look of healthy natural teeth. So he turned his attention toward remedying this defect and tried many experiments to that end. He was finally indebted to an accident for a much earlier solution of this problem than he expected. Needing a teacup for some purpose one day in his work he went into his dining-room and took one from the table, which happened to be one from his wife's best china set. On his way back to his room in a hurry, he dropped and broke it. He picked up the pieces to see if his ingenuity could reunite them. But what he saw diverted his mind from the calamity feature of the accident, and inspired him with hope of success in his new search. In examining the pieces with a view to repairs, he noticed one piece had broken so as to leave a piece of glazing projecting above the body of the cup. That was enough to fire his imagination in its then condition of enamels and glazings, and he felt at once that through that he was on the road to success in his pursuit. He arranged his affairs at once so he could leave home for some little time, secured letters from friends in the city who were customers of the manufacturers of the wares where the cup was made, went to the factory and presented his letters, stated the purpose of his visit and was assured he should have any assistance they could render him. The result was that a few days' examination of the practical workings in the manufacture and use of enamel, showed him where he had missed it in his experiments, and making practical use of his revelations by application of it, to some of the teeth he had brought with him, found he had gotten the key

to the situation and felt such relief as may be imagined. With this last finish to his experiments he returned home to receive the congratulations of his friends in and out of the profession. His work in this line of invention has received little addition or improvement as to the strength of the tooth body to the present time.

As a mechanic Dr. Harwood had few equals. He especially excelled in the use of ceramics. An interesting case (Figs. 1 and 2) of a noseless man supplied with a mineral nose is reported in the "Boston Medical and Surgical Journal," May 9th. 1838. page 221.



Dr. Harwood made an artificial nose for a shockingly deformed young man of Worcester County, Mass., which could hardly be distinguished on close examination from a genuine nasal organ. When the patient was six years old, while lying on his back in the cradle a spark from the fire ignited the cloth spread over his face, which was so horribly burned that the entire nose even to the ossa nasi or bridge bones about the cartilage sloughed off level with the cheeks. The expression of the unfortunate being, then perhaps twenty years of age, was disagreeable in the extreme. He went to Boston, ostensibly to undergo the Taliacotian operation: but the breadth of surface

between the eyebrows and hair being rather small, Dr. Winslow Lewis, a physician, who was consulted, was convinced that the chance of success was a limited one, and he therefore recommended him to Dr. Harwood to attempt a plan altogether new in this country, that of constructing an artificial nose of a mineral substance commonly used in dental surgery for artificial gum. The ingenuity of this gentleman surpassed the expectations of those who had watched his benevolent exertions. The new nose was superior in appearance to those usually constructed by the Taliacotian method. In order to keep the new facial apparatus always seemingly in place a pair of spectacles was an indispensable accompaniment. The writer has reports of other equally difficult porcelain operations treated by Dr. Harwood that show his wonderful skill.

Dr. Harwood was a painstaking operator and prided himself on the durability of his fillings which, of course, in those days were of non-cohesive gold foil. One day in the last year of his life, when walking down Devonshire Street, he met Col. Thomas H. Perkins, one of the first bankers and an old friend and patient of his. The Colonel stopped him to have a chat and directly touched a front tooth and said, "Doctor, there's a tooth you filled for me 42 years ago." "Well," said the Doctor, "It did pretty well to last as long, didn't it?"

A note from Wendell Phillips, in possession of his relatives, reads as follows:

Friday, December 8th.

DEAR DOCTOR:

That yellow front tooth which you kindly saved *forty* years ago has loosened so much within a day or two that I fear I must lose it. I return to Boston Saturday (to-morrow) about 11 o'clock; will you let me see you if only ten minutes between 11 and 12, and oblige,

WENDELL PHILLIPS.

Mr. John D. Sargeant of Boston, an old-time patient of Dr. Harwood's writes me(February 15th, 1906, he still has an upper left molar tooth doing duty that Dr. Harwood filled at Machias, Maine, in 1846—sixty years ago.

It is not worth while to multiply instances of this kind, but these were representative cases that occurred to strengthen the evidence of the thoroughness and faithfulness of his work.

In 1867 he was unanimously elected Professor of Dental Pathology and Therapeutics in Harvard Dental School. There had been considerable variance among the dentists of Boston in regard to questions arising in reference to the proposed association with Harvard College. There were many differing

opinions and views in regard to the relative standing of the medical and dental schools, Doctor Harwood insisting on the dental school being established on an equal footing with the medical school in the institution. The views were so variant and difficult to harmonize, Dr. Harwood soon saw he would by accepting the honor take upon himself a burden greater than he was willing to assume, and he, reluctantly, to both parties, tendered his resignation in 1868. Subsequent events proved to him the wisdom of his decision.

He early became affiliated with Masonry and from about 1829 to 1860, during his continuous residence in Boston, with the exception of his six years' residence in Machias, Maine, he was a regular attendant upon the Masonic meetings. He took all the degrees of the order, including the 33d, and held various positions of trust and distinction in the order. He was, from his youth up, a strong advocate of temperance, and during his residence in Portland, Maine, under the influence of Hon. Neal Dow, became a zealous teetotaler and during the rest of his life he was a vigorous defender of that belief. He neither smoked nor used tobacco in any form. He frequently spoke in temperance gatherings and found time to woo the Muses and write an occasional song for his temperance meetings, his "Boat Club," and other social gatherings which attracted him. He was frequently invited to lecture before the American Academy of Dental Science of Boston, of which he was the second president, 1868. He was present, by proxy, at the organization of the American Society of Dental Surgeons, August 18, 1840, in New York City, and was appointed on the first examining committee of this society. He was also a member of the Massachusetts Medical Society and of the Boston Medical Society. The honorary degree of D. D. S. was conferred upon him, 1849, by the Baltimore College of Dental Surgery.

He wrote articles on specific professional subjects for dental publication. They appeared in the "American Journal of Dental Science." He was an earnest and forcible speaker; his aim always being to lift those around him, and better their condition.

During his boyhood he became accustomed to attending the Unitarian Church, the dominant church in his native town, and, as it met his requirements, he continued to affiliate with it wherever he lived. Many of his warmest and best friends were ministers of that denomination. He attended the Unitarian Church in Federal Street, Boston, whose pastor was the distinguished Dr. Channing. Politically, he was a Republican from the incipiency of that political belief, though he never mingled greatly in politics.

He married Rebecca Elvira Dana of Portland, Maine, October 28, 1828.

They had three daughters, Mary Dana, Ellen Winship and Ann Louisa, all of whom survived to mature life, married and had children.

As a sportsman the Doctor in his younger days was quite a famous "wingshot" and that in a country celebrated for such sport and selected now from all places in the State, for the "annual fox hunts," which are still held in Barre. He could go out almost any day in "the season" and bag a dozen or more woodcock. He kept two fine pointers, splendidly trained and he enjoyed the sport very much. He was also an exceptionally fine rifle shot which was developed by target practice. But this practice stood him in good stead later in life when he made his temporary home in Maine which has always been reckoned one of the greatest states for game in the Union.

That there was always a warm spot in his heart for the farm life he gave up to satisfy other ambitions, is evident by his selection when he concluded to retire from a city residence in 1855, to an "out of town" home in the country, called "Sunnyside," at Dorchester, now the twenty-fourth ward of Boston. There were ten acres of it, and a two-story house, ninety-six years old, where he spent the rest of his life. On this place he made many improvements.

During his second year in Dorchester he built a greenhouse large enough to raise all the flowers he wanted for home use and friends. He became as enthusiastic a floriculturist as he was dentist in the zenith of his fame. He experimented with flowers, cropping and mixing, and had great enjoyment in the result. During the second year of his green house he succeeded in producing a new variety of pink for which the city flower dealers gladly gave him double the price they gave for any others. His flowers were all the best of their kind. He had thirty varieties of pears, the best he could select, on his place. He had all the small fruits in variety and perfection.

From his earliest childhood till he "closed the book" he was busy constantly. He was never a drone, and could turn his hand to anything and was by nature and ability fitted to be a leader and with an ambition to win the goal he set for himself. About 1871 he laid down his sceptre, as a practical operator, turning his business into the hands of two young men, Drs. Aaron H. and W. B. Parker, who had been under his tutelage several years. He soon gave up his visits to the city and retired more completely to his beautiful home, "Sunnyside." He mingled occasionally in the town meetings and social gatherings. He had no occasion to visit the city, and seldom did so in his last few years and enjoyed the quiet of home with his family and neighbors. From the very stirring life he had lived, the quiet rather wore upon him. Death came finally October 2nd, 1881, in the eightieth year of his age.

He was buried in Forest Hills Cemetery, Boston. He died leaving the profession his debtor. It was through his untiring efforts and those of Joshua Tucker that the early perfection in the manufacture of porcelain teeth was brought about. Both of them deserve much credit for their labors along this line. Harwood was a prominent man, occupying in his section of the country the same position that Hudson did in Philadelphia, and that Hayden did in Baltimore. None can over-estimate the great good he did for the profession in the early days.

The facts contained in this sketch were obtained from Mr. John D. Sargent, Boston, a son-in-law of Dr. Harwood; Elbridge Bacon, M. D., D. D. S., Bar Mills, Maine, a student and contemporary of Dr. Harwood; Dr. A. F. McAvvenney, St. Johns, N. B.; and the "Dental Cosmos," Vol. XXIV., January, 1882, page 46.

SAMUEL PRENTIS CUTLER, M. D., D. D. S.

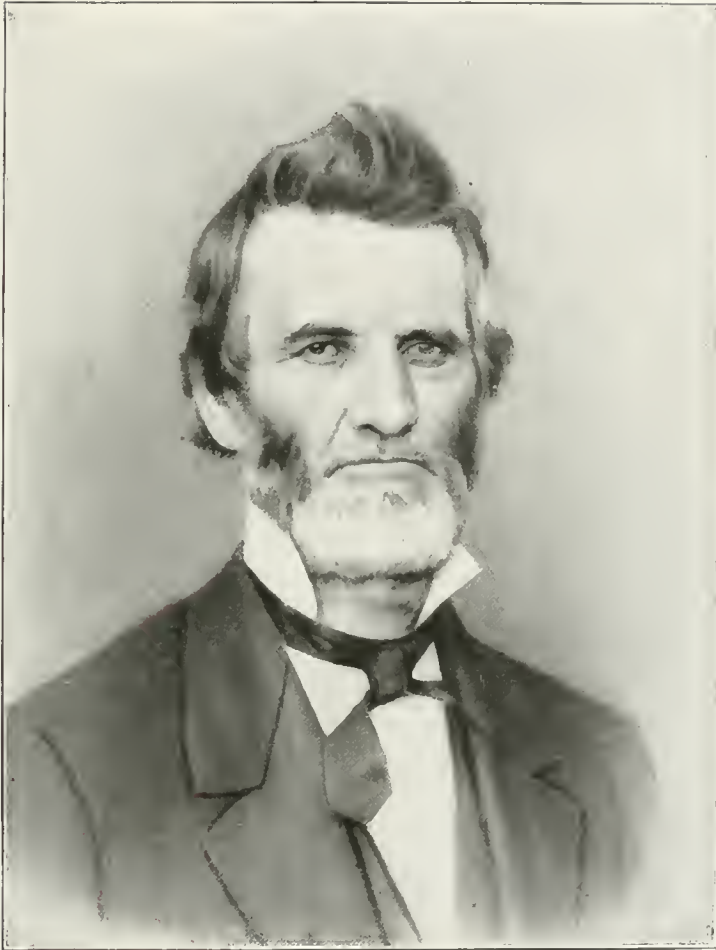
PIONEER EXPERIMENTER AND TEACHER IN MICROSCOPY.

Samuel P. Cutler, a farmer's son, was born in Montpelier, Vermont, in 1815 and died in Memphis, Tennessee, January 1st, 1880. At the time of his death the Microscopical Society of Memphis passed memorial resolutions in which he was spoken of as one whose "vast knowledge, ceaseless energy and probity of character were exponents of, and gave dignity to, the dental profession." A meeting of physicians and dentists was held, and a committee consisting of two physicians and two dentists was appointed to prepare a history of his life and labors. The work was entrusted to Dr. Powell, of White Sulphur Springs, Tennessee, and when nearly ready for publication, all the accumulated material was unfortunately destroyed by fire. Enough has been preserved in the journals of both the dental and medical profession, however, to bear ample testimony to the vast amount of work accomplished through his untiring energy and ceaseless industry. He was a mechanical genius and the most scientific Southern dentist of his day.

He labored under unusual difficulties in the earliest part of his career, beginning his microscopical investigations with lenses of his own grinding and microscopes of his own construction, and practicing dentistry with instruments of his own manufacture forged in a village blacksmith's shop. He was a practicing physician in Troy and Dresden, Tennessee, at the time he began to study dentistry.

His professional life was mostly spent in Holly Springs, Miss., in New Orleans, La., where he was one of the faculty of the New Orleans Dental College, and in Memphis, Tenn., where he removed to in 1872. Many of his papers published in the "Cincinnati Medical News" the "New Orleans Medical and Surgical Journal," and the various dental journals, were republished in the English medical journals.

A list alone of his papers would fill pages, while his writings would fill volumes. They were read before the American Medical Association, the American and Southern Dental Associations and published in the "Dental



S. P. Curtis

Cosmos," the "Dental Register," the "American Journal of Dental Science," the "Missouri Dental Journal" and other periodicals.

Of one paper on the "Microscopy of the Teeth," read before the American Dental Association in 1867, it was said, in the discussion that "if the meeting had done nothing but call out Dr. Cutler's paper, it was a decided success.

A paper on "The Physiology and Chemistry of Old Age" read before the American Dental Association in 1869, was republished in both the medical and dental journals. A series of articles on the "Microscopy of the Dental Tissues" was published in the "American Journal of Dental Science," running through a number of series in '69 and '70.

Among other early papers may be mentioned "The Minute Structure of an Amalgam-Filled Tooth, as Revealed by the Microscope," in the same journal, June, '71; "Ossified Pulps," January, '72; "Filling Over Exposed Pulps," October, '72; "Nitrous Oxide Experiments," August, '73; "Physiology of the Dental Structures," September, '72; "Dental Histology and Microscopy," '79.

Few individuals in the annals of dentistry have held as many positions of trust and responsibility as did Dr. Samuel P. Cutler.

After locating at Memphis, he organized the "Memphis Microscopical Society," composed of a small circle of his scientific admirers and friends, who enjoyed many private lectures and demonstrations in comparative anatomy, histology and bacteriology revealed to this great teacher through his daily research work with the microscope.

In the early history of Memphis there existed a City Ordinance requiring Dentists to pay an annual privilege tax of fifteen (\$15.00) dollars which had been quietly submitted to and paid without question. When this notice was first served on the profession in 1872, Dr. J. L. Mewborn determined to fight the legality of the act, but could get no one willing to join him in a test case until he laid the matter before Dr. Cutler, who quickly agreed with him. They submitted to arrest, put up forfeits in the police court, employed a lawyer, won the case, reclaimed their forfeits, and no dentist has paid a privilege tax in Memphis since that date.

Dr. Cutler was a great student of the relics of the Aztecs, Mound Builders and Flat-Head Indians and had quite a collection of their skulls. Dr. Mewborn says of him: "In physique he was much like L. Q. C. Lamar, of Mississippi, tall and stoop-shouldered, slow and deliberate in motion, modest and unobtrusive in manner, but in the forum his eyes would flash, his soul warm, his ideas scintillate from resourceful stores of knowledge and convic-

tion shower upon his hearers in a masterful flow of language, which won his cause in any discussion. After death and at his bier, I realized how peacefully a giant sleeps."

He was Professor of Chemistry, Metallurgy and Histology in the New Orleans Dental College, 1869-70; Professor of Chemistry, Lexology and Medical Jurisprudence in the Medical College of Memphis, Tenn.; Professor of Chemistry and Microscopy in the Ohio College of Dental Surgery; Professor of Chemistry and Histology in the Medical department of the Cumberland University, Nashville, Tenn.; Lecturer on Anatomy, Physiology and Hygiene, Fenlon Hall High School Holly Springs, Miss.; Member of the American Medical Association, of the American Dental Association, corresponding member of the Tennessee State Dental Association and of the New Orleans Academy of Sciences, and Honorary Member of the Southern Dental Association, elected to this membership at the meeting of organization at Atlanta, Ga., July 29, 1869. The Ohio College of Dental Surgery conferred the honorary degree of D. D. S. upon him in 1852.

In 1873 when there was a question of the endowment of a chair by the Southern Dental Association, the Faculty of the Baltimore College of Dental Surgery passed the following resolutions:

"Resolved: That, recognizing in Prof. S. P. Cutler, of Holly Springs, Miss., a gentleman in every way qualified by scientific research and attainment to perform the duties relating to a professorship of 'Microscopical and Comparative Anatomy,' he be appointed as the Professor of this branch of science in the B. C. D. S."

Dr. Cutler was a broad minded man, gentle, unpretentious and charitable. He cared nothing for saving money and assisted many in distress. His one great desire was to do something for humanity and his profession.

He was fond of music and played the violin, making his own instrument from curled maple, sawed from a tree on his uncle's land in Vermont. In politics he was a Democrat and a Union man, but loyal during the rebellion to the South. When the state of Mississippi seceded he went with it, yet feeling all the time they could not win.

He married Miss Diana George, daughter of Mrs. Ann Haskins, of Trenton, Tenn., December, 1840. They had no children.

The principal facts contained in this sketch were obtained from Dr. J. L. Mewborn, Memphis, Tenn.; and Dr. Robert K. Luckie, Holly Springs, Miss.

CYRENIUS ORLANDO CONE, M. D., D. D. S.

THE FIRST DEMONSTRATOR OF MECHANICAL DENTISTRY IN A DENTAL COLLEGE.

The first record of the Cone family is of Daniel Cone, born in Edinburgh, Scotland, 1626. He emigrated to America some time prior to March, 1657, coming, it is supposed, in the ship "John and Sarah," locating shortly after at East Haddam, Connecticut.

He married Mehitabel Spencer, daughter of Jarred Spencer, who was an "Ensign of Militia, Commissioned 1656," in King Philip's war, and a noted soldier of his day.

To this couple of pioneers was born Nathaniel Cone, who was the father of Lieutenant James Cone, of whom "the Colonial Records of the General Court of Connecticut, October, 1738," state: "This Assembly do establish and confirm Mr. James Cone to be Lieutenant of the Company, or Trainband in the Parish of Millington, and order that he be commissioned accordingly." Record further states he was with Sir William Pepperell at the taking of Louisburg, and he was a member of the Connecticut Legislature in 1747.

Lieutenant Cone was the father of Sylvanus Cone, who was a participant in the Battle of Bunker Hill, where he was slightly wounded, his pocketbook showing the imprint of the ball. He was near General Joseph Warren when he fell, and named his son Joseph Warren after the General.

In the Connecticut Historical Society's collections, Vol. VIII, page 211, Revolutionary Rolls and Lists of 1775 and 1783, under Military Service, Officers' Pay-roll of 1779, appears the name of "Corporal" Sylvanus Cone, while the Connecticut Archives of War, Vol. V, Document 314, and Connecticut French and Indian War, Rolls and Lists of 1756 (page 34), 1755 (page 28), give Sylvanus as a private in the expedition against Crown Point in Captain Ichabod Phelps's Company in the Third Connecticut Regiment and in Captain Edmund Wells's Company in the Fourth Connecticut Regiment, respectively.

To Joseph Warren Cone and Mehitabel (Swan) Cone was born, September 22, 1820, in Millington Society, East Haddam, Conn., a son, who was



Le Lion

named Cyrenius Orlando Cone, the subject of this sketch, being the youngest of six—two daughters and four sons.

His early boyhood schooling was obtained at the country schools in East Haddam. Following this, he went to live with one of his brothers, Joseph Edward Cone, in West Hartford, and when he was fifteen years old attended the West Hartford Academy, a new school at that time. Little is known of young Cone's early boyhood except that for a few years, beginning when he was seventeen years old, he owned and conducted a book-store in Sag Harbor, Long Island. This nevertheless was not a success, and, having a natural inclination toward dentistry and forming about this time the acquaintance of Dr. Solyman Brown, at that period a noted dentist of New York City, he took dentistry up as his life profession, and began its study under Dr. Brown in 1841. Young Cone was an apt scholar, and by the quickness of his wit and keen mechanical ability so perfected himself that Dr. Brown gave him a certificate of recommendation, and Dr. Cone began practice as an itinerant in Massachusetts, visiting notably the towns of Chatham, Falmouth, and Edgartown. This he continued until the fall of 1844, when, with a desire to more thoroughly perfect the details of his profession from both the mechanical and scientific side, he went to Baltimore and attended lectures at the Baltimore College of Dental Surgery, from which he graduated April 15, 1845, with honors. Immediately following his graduation he went to Georgetown, Ky., where Dr. John Harris (a brother and preceptor of Chapin A. Harris, also preceptor of James Taylor, John Allen, and others of the best men of the day), who was to absent himself from his practice for a year, turned his practice for that period over to the care and skill of Dr. Cone, whom he recommended to his clientele through the newspapers as a "man of moral and professional worth;" with the endorsement of this worthy man, Dr. Cone soon commanded a busy practice and the esteem and respect of a large circle of acquaintances.

It was his intention when he located at Georgetown to reside there permanently; but early in the fall of 1846 the Baltimore College of Dental Surgery, knowing his attainments in dental prosthesis, tendered him the demonstratorship of mechanical dentistry. This was in the seventh year of the existence of the college, and he was the first demonstrator of mechanical dentistry. At this time Amos Westcott, M. D., was Professor of Operative and Mechanical Dentistry. Dr. Cone accepted the offer and removed to Baltimore, where he served the college in this capacity three years. He proved an interesting lecturer, and made a marked impression upon the students. In

1849 he succeeded Dr. Amos Westcott as Professor of Operative and Mechanical Dentistry. These chairs he ably filled until 1852. It is recorded that at one of the annual commencements of the College, the presiding officer of the Faculty, Dr. Chapin A. Harris, requested the graduating class to rise and hold up their right hands. Dr. C. O. Cone, a pompous little man of much dignity, stepped forward and delivered a discourse on ethics and wound up by making all the class swear that they would not use "amalgam" in their practice. Of course, all took this pledge, and all probably soon broke it.

Dr. Cone bought property and practiced at 72 North Charles Street (new number, 316), Baltimore, Md., where he soon acquired an excellent practice.

Dr. Cone was a clear, forceful writer, contributing a few papers to the early numbers of the "American Journal of Dental Science." Some of his topics were: "Dental Caries," "Third Dentition," "Dental Ethics," "Exposed Pulp," "Rizodontrypy, or Treatment of Exposed Nerves," "Extraction of Teeth," "Filling Teeth," "Effect of Diseased Mouth on the System," "Deficiencies of the Palate," "Development of the Teeth," etc.; and "An Essay on the Structure and Formation of the Teeth in Man and Animals," by Robert Blake, published by the American Society of Dental Surgeons, 1848, as a part of the "American Journal and Library of Dental Science."

He was a member of the American Society of Dental Surgeons of which he was corresponding and recording secretary, 1852 and 1853, and was also a member of the Maryland Historical Society, which he joined in 1849. He was a member of the Masonic Fraternity and an Odd Fellow. As Dr. Cone grew older he desired more fully to understand the scientific part of his profession. In 1857 he took a course of lectures at the Washington Medical University of Baltimore, from which he received the degree of M. D., March, 1858.

He was a man of great energy, and his active college duties and excessive study to acquire his degree, in addition to the conduct of a large office practice, so impaired his health that his death followed. This occurred at Hartford, his brother's home, where he had removed and where he died of tuberculosis in the prime of his career, August 1, 1858, thirty-eight years of age, and was buried in the old cemetery on North Main Street, Hartford, Conn. Dr. Cone was married April 3, 1840, at Brooklyn, N. Y., to Miss Helen Terry Glover, whose ancestor, Stephen Hopkins, came to America, 1620, in the "Mayflower" and was the fourteenth signer of "The Mayflower Compact." To them was born one son, Joseph William Cone, who now resides at Hartford.

Dr. Ehrick Parmly, of Oceanic, N. J., a son of the pioneer Dr. Eleazar Parmly, writes:

"Dr. Cone was a student of Dr. Solyman Brown. This accounts for some of Dr. Cone's peculiarities as a teacher. Dr. Brown was a man of marked versatility. He was a college-bred man of scholarly tastes and refinement, and had a most happy faculty of imparting knowledge. In this respect I never met his equal. My acquaintance with Dr. Cone was when a student in the Baltimore College of Dental Surgery. He was untiringly painstaking in all he did. He was specially useful in conducting a clinic. He would always appear before the students as neatly attired as in his office, and insisted upon the students, while operating, being well dressed out of respect to themselves and to their patients, to whom, as they were mostly among the poor classes, they might think it not worth while to show any attention. No manicurist could give more minute directions for caring for the hands than he. As to address, he was very particular. The social side of professional life he would dwell upon. In the laboratory he was very thorough in his teaching. At first students thought him fussy, but later they appreciated him fully. He thought it an advantage for every one to have a hobby or fad. He knew the likes and dislikes of all his patients and he was so tactful that he obtained his information without any apparent attempt to gain it. His kindly nature and consideration for others made him beloved by all with whom he came in contact. His professional skill was of a high order. Over fifty years have passed since we met as student and teacher but he left his imprint on my character."

Besides his college classes, Dr. Cone had several private students, who afterwards were a great credit to him and the profession, among whom was Dr. Homer Judd, one of the foremost men in early dentistry in St. Louis.

Dr. Cone was contemporary with Horace H. Hayden, Chapin A. Harris, Eleazar Parmly, Robert Arthur, Emile Gardett, and S. P. Hullihen, the latter being his special friend. Dr. Cone deserves to be held in grateful and lasting remembrance by the whole profession. He lent his skill and dignity to making dentistry a learned profession.

The facts contained in this sketch were obtained from Mr. Joseph William Cone and Mr. Robert Buckland Cone, son and grandson, respectively, of the subject of this sketch, and from "An Early Record of Dentists of Connecticut," by James McManus, D. D. S., Hartford, Conn.; "History Cone Family in America," by W. W. Cone; "American Ancestry," Vol. IX., page 134; "History Middlesex County, Conn.," pages 321, 322, published by J. B. Beers, New York; "Hinman's Connecticut Settlers," page 694.

ISAIAH FORBES, D. D. S.

THE FATHER OF ST. LOUIS DENTAL SURGERY.

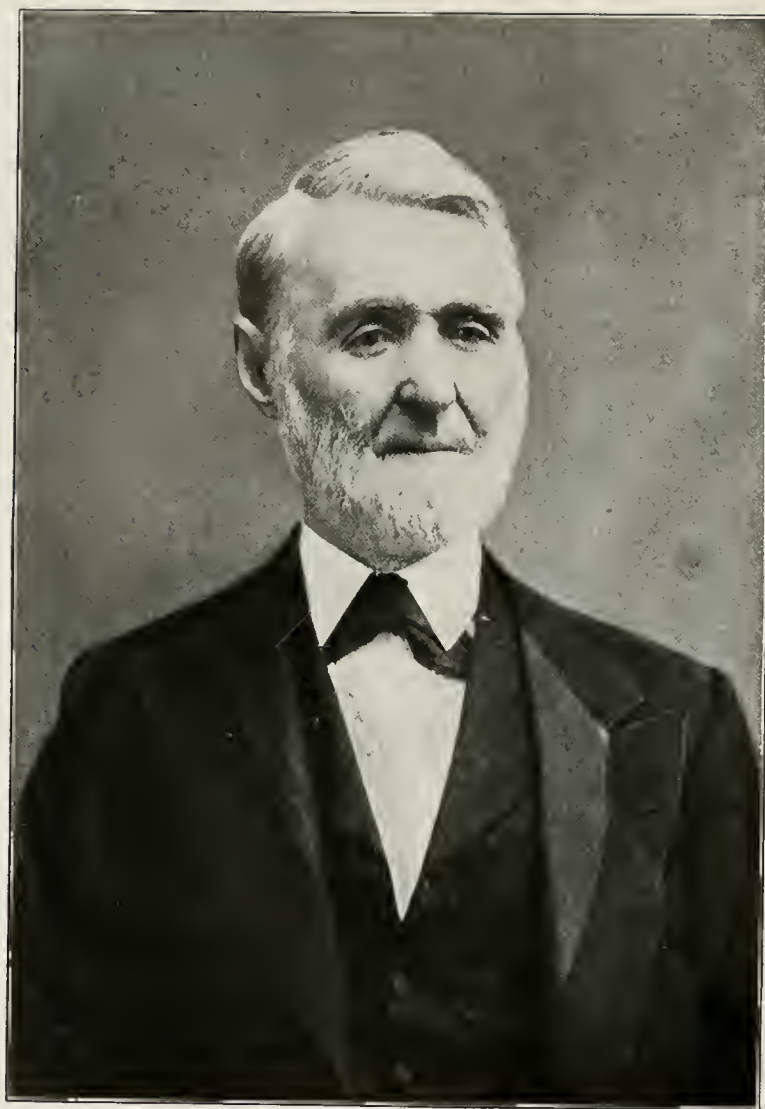
Isaiah Forbes was born in Albany, New York, March 25, 1810. He was the son of Nathaniel and Ruth Lyman Forbes, his mother being a member of the well-known Lyman family of Connecticut. His father was an architect. Owing to business reverses he was able to give his son only a public school education.

Young Forbes was a school teacher early in life. In 1830 he went to New York City and was engaged in clerical work. Soon after he went to Buffalo, where he remained two years; he then returned to New York City, where he began the study of dentistry with Drs. Ambler and Kingsbury, 3 Park Place, New York City, and worked so assiduously that he was able to begin practice a year later.

Dr. Forbes opened a neat office and started fairly well for a beginner. He gathered what books he could at that time on dentistry, and put in all his odd moments in study. Upon being called away from the city to attend the funeral of his sister, he left a friend to care for his practice. During Dr. Forbes's absence this friend sold out everything—instruments, furniture, etc.,—and absconded with the proceeds. The loss of the instruments was especially exasperating to Dr. Forbes, who, being left-handed, had made to order many for his special convenience. Nothing daunted, Dr. Forbes began anew and again secured an outfit.

Exclusiveness and secrecy prevailed at that time among the profession, and the dental student was indebted as much to his ingenuity and cleverness as to the advantages afforded by his instructors for the knowledge gained of his specialty.

He came to St. Louis in 1837: the population was eight thousand. He found only ten practicing dentists. Among them Drs. B. B. Brown and Edward Hale, Sr., were the leading men. In less than three years the ten were reduced, from want of patronage, to Drs. Hale, Brown and Forbes, who remained the foremost in the profession, until in 1849 the California gold fever



Isaiah Forbush,

influenced Dr. Brown to depart for the Pacific slope, leaving Drs. Hale and Forbes the veteran dentists.

When Dr. Forbes came to St. Louis, Second Street was the fashionable thoroughfare, and on this street he established his first office—at Second and Vine Streets, where, from the first, by his skill, he soon commanded a good practice. In 1849 he gave up dentistry and went into the milling business for two years. Owing to business reverses he lost all he owned, and he again took up his professional work and repaid his outstanding obligations.

Dr. Forbes was one of the sturdy, progressive kind of men who, by perseverance and energy, helped advance dentistry in this section of the West. He was a natural born leader, of dignity and ability, and was identified with nearly all beneficent and progressive efforts of the profession for a period of forty-six years.

He was one of the leaders in the movement for the organization of the St. Louis Dental Society. The preliminary meeting was held December 9, 1856, when a constitution and by-laws were adopted, and on the sixteenth of the same month the election of officers was held at the office of Drs. S. Dunham and E. Hale, Sr. Dr. Dunham was elected President and Dr. Forbes was elected a member of the Executive Committee. In 1867 Dr. Forbes was elected President of the Society. The regular meetings were held at the offices of the members and were followed by a supper.

Dr. Forbes proved an enthusiastic dental society worker. He attended the second annual meeting of the American Dental Convention, 1856, and in 1858 was elected President of the Convention.

In 1873 Dr. Forbes was First Vice-President of the American Dental Association, and Vice-President of the Southern Dental Association in 1878. He was one of the organizers, and later, 1857, was President of the Western Dental Society, and was succeeded in that office by Dr. W. W. Allport, of Chicago.

Dr. Forbes was active in the organization of the Missouri State Dental Association at St. Louis, October 31, 1865, and was elected Corresponding Secretary at its second annual meeting, 1866, and Treasurer in 1867.

In the organization of the Missouri Dental College, 1866, Dr. Forbes was actively interested, and was elected the first President of the Board of Trustees, a position he held for fifteen years. He was Professor of Surgical and Operative Dentistry from 1875 to 1877, when he became Emeritus Professor of the Institutes of Dental Science. He received the honorary degree of Doctor of Dental Surgery from the Ohio College of Dental Surgery in 1850.

In 1858 the "American Dental Review" (quarterly) was established by the A. M. Leslie Dental and Surgical Depot. It was edited by Drs. C. W. Spalding, Isaiah Forbes, and H. E. Peebles. This journal continued until 1863. In 1868 the "Missouri Dental Journal" was organized: the first number appeared January, 1869. Dr. Forbes was one of its founders.

In 1838 Dr. Forbes constructed along original lines a dental chair which showed remarkable inventive ability. He was an expert operator, especially excelling in the manipulation of non-cohesive gold-foil, and invented a number of useful operating instruments, among them the Forbes gouge, used for opening into molar pulp chambers (Fig. 1) and for immediate pulp extirpation; of these there were six or seven sizes: a set of plug finishing files; one of which is shown in Fig. 2, which were used universally in fillings: a separating file carrier (Fig. 3), and also a tape carrier and polisher (Fig. 4) on which various grits for polishing fillings were placed, that period being before the introduction of sandpaper disks and strips. He also invented a Rubber Dam Applier.

It is said that Dr. Forbes would never condemn the poor work of a professional worker, but would cover the defect with a mantle of charity. Once a parent called on Dr. Forbes regarding a case where a dentist had accidentally extracted a permanent lower incisor, while in the act of removing a deciduous tooth in the same locality for a child. Dr. Forbes told the irate parent that the accident was likely to occur with any dentist and that he personally had had a like experience.

He was above the narrowness and secrecy that retarded dental progress at that period, and one of the first, if not the first, in St. Louis to tutor students in his office. Among his students were Sol. Horine, Charles Knower and Francis A. Brewer. He used his influence to promote a wide interchange of opinions and experience between dentists of different cities, giving the younger men every opportunity to profit by the work and progress of the older men.

Dr. Forbes was equally as active in secret society as he was in dental society work. He stood high in the Masonic and Odd Fellows circles, and held the highest subordinate offices in both. He was Master of Missouri Lodge, No. 1, A. F. and A. M., 1850.

Dr. Forbes was initiated in St. Louis Lodge No. 5, I. O. O. F., in 1841 or 1842, was admitted to Grand Lodge of Missouri April 24, 1844, elected Conductor of the same January 22, 1845, and was made Grand Representative to the Grand Lodge of the United States and attended the session of that body at Baltimore in 1845. He was elected Deputy Grand Master Missouri Grand Lodge January 28, 1846, withdrew from St. Louis Lodge No. 5 to assist in organizing Excelsior Lodge No. 18, which was instituted September 9, 1846.

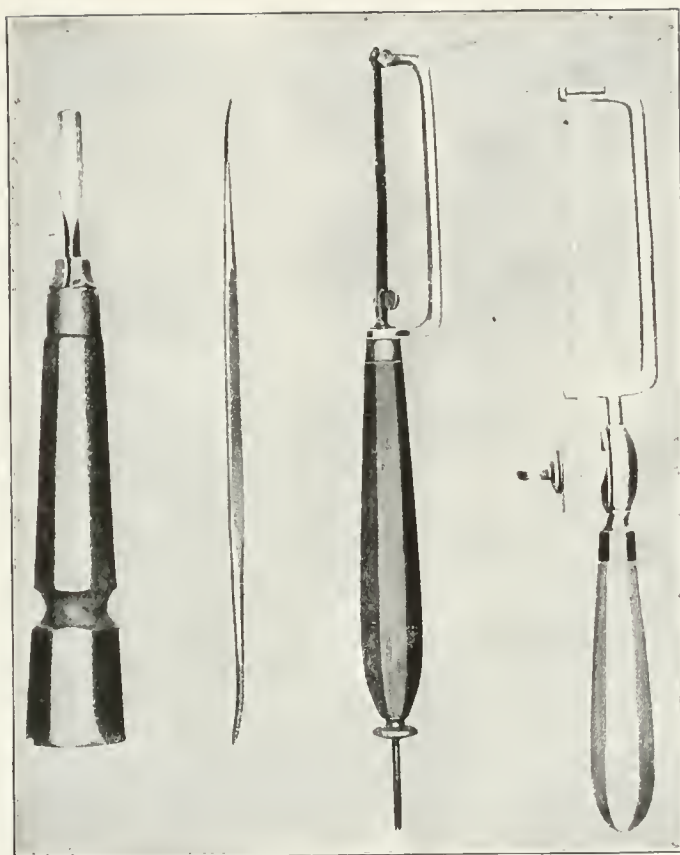


Fig. 1

Fig. 2

Fig. 3

Fig. 4

Forbes' Instruments.

He was first Noble Grand of No. 18 and afterwards Treasurer of the Lodge for a number of years. He retained his membership till the day of his decease and was buried with the honors of the order. He was made Grand Master of Missouri October 18, 1851, having on previous occasions declined the honor in favor of some of his friends, and was Grand Patriarch of the Encampment branch of Odd Fellowship, 1849. He was at all times ready to respond to any demands for his services in behalf of the order and received all the honors the order could give him in the State.

In public and civil affairs he was one of the foremost citizens of St. Louis. At one time he was nominated for Mayor, but declined the nomination. He was always interested in educational work, and had some experience in such matters in the public school systems of New York State. His name was a household word in the St. Louis school board, of which he was the practical founder. He was a member of the school board for fifteen years, and it was largely through his influence that a high school was built. Mr. Carlos Greely, Mr. George Patridge and Dr. Forbes were appointed a committee to choose the location for the first St. Louis high school. He also used his influence while a director of the school board to make the salaries of women teachers more in proportion to those paid men. He was president of the board for two terms 1854-55, and was chairman of the teachers' committee all the years he served except when he was president. He was one of the founders of the St. Louis Academy of Science and the St. Louis Historical Society, and a member of the Society for the Advancement of Science. Under Mayor Mullanphy's administration he served on the Board of Aldermen, and personally supervised the building of the city hospital. Dr. Forbes was one of the well-known public spirited citizens of St. Louis, having friends in every walk of life, and for years dentist to a number of Catholic institutions of St. Louis.

He was a great reader, thoroughly posted on the most diverse subjects, and an encyclopædia of general knowledge. Theoretically he was a fine musician, possessing a good baritone voice, and sang for years in the Walnut Street Cathedral. He was one of the founders and a guarantor of the old Philharmonic Society, which was the prominent musical organization of the day.

Dr. Forbes contributed several interesting professional papers. These were published in the early volumes of the "Missouri Dental Journal" and the "Dental Register of the West."

At a meeting of the Western Dental Society he very beautifully expressed the following sentiment:

"May the spirit which animated the early promoters of dental literature—the parents of a liberal, free American dental education, and unselfish interchange of thought—find the young men of the profession temples fit to dwell in."

He was married February, 1847, by Bishop Hawkes to Miss Cornelia Staats, of Weston, Missouri, a descendant of one of the old New York Knickerbocker families. She died February 16, 1891. To them were born six children, viz.: Daisy, Anna (Mrs. J. H. Brookmire); Gouverneur Morris; John B.; Cora B.; and Isaiah, Jr. All are living at the time of the publishing this sketch except John B., who died January 28, 1903, and Daisy, who died in infancy.

Dr. Forbes died of senility July 15, 1885, and was buried in Bellefontaine cemetery. Funeral services were conducted at Dr. Forbes's residence by his old friend, Rev. Trueman Post, and the Odd Fellows services at the grave were conducted by Dr. Forbes's former associate, Dr. George A. Bowman, who said, in eulogy of him,—

"All that is mortal of our departed brother we lay in this narrow house of the dead, but his spirit is over us in this act, and is free to soar to Elysian heights, even unto God himself. His gracious presence we shall miss, and his words of wisdom have ceased to fall on our ears.

"Every one of us can call to mind his inimitable personation of the old wise man in the East, who said, 'I have been young, but now am I old; yet, have I not seen the righteous forsaken, nor his seed begging bread.' Four years of constant professional association with him and an intimate social relation with him for many years enables me understandingly to speak of his uniform urbanity and kindness, of his dignified and refined consideration of those with whom he chose to associate. His heart was not on his sleeve, but it beat warmly and affectionately for those whom he admitted to his confidence. Here let him rest and as we go forth to battle with the affairs of life (which he has laid down) may we be actuated by the same lofty purposes which animated him and crowned a long and useful life with the wreath of laurel and the plaudits of men."

His hospitable home was always open to his friends; he and his loyal wife often entertained visiting dentists. He was devoted to his professional work and for many years firmly upheld the honor and interests of St. Louis dentistry, keeping in touch with new inventions and new methods. He greatly aided in the advancement of the profession and he was ever willing to impart and equally anxious to receive knowledge as a student. He traveled many

miles attending dental meetings and was the recipient of high honors and the representative man in St. Louis dentistry of his day. In 1866-67 Dr. Forbes made a tour of Europe, visiting the principal cities and forming the acquaintance of the leading dentists abroad who showed him marked attention.

His kindness and helpfulness toward the young men in the profession was proverbial. He was respected by young and old. His honor was unimpeachable, and his standing as a typical professional man and citizen of the old school were of the highest order.

Of him may be truly quoted:

“And so he bore without abuse
The grand old name of Gentleman.”

The principal facts contained in this sketch were obtained from Miss Cora B. Forbes, Old Orchard, Mo.; Scharf's "History of St. Louis City and County," Vol. II, 1867-68; Taylor and Cooke's "Sketch Book of St. Louis," 1858, and "The Commonwealth of Missouri," 1860.

ELIAS WILDMAN, M. D., D. D. S.

EXPERT MAKER OF PORCELAIN TEETH, CHEMIST, METALLURGIST, AND PROMINENT
DENTAL TEACHER AND PRACTITIONER.

The subject of this sketch was born July 8, 1811, near Morrisville, Bucks county, Pennsylvania. He was the son of William and Elizabeth Wildman, both Quakers and members of the Friends' meeting at Fallsington. Young Elias was brought up as a member of that Society, but having married a woman not a Quakeress, was disowned by that sect. A committee of Quakers called on him after his marriage, requesting him to apologize for so doing, but he did not, stating he would not lie about the matter, as he was not sorry for his marriage relations. His name was then erased from the rolls of the meeting and he ceased to be a member. In his future life, he never connected himself with any particular church, believing it not absolutely necessary, and that a man's present as well as future happiness depends entirely on an upright, honest life.

His parents were farmers and he attended a country school while a boy, but later went to Smith's boarding school at Wilmington, Delaware. He studied medicine and graduated at the University of Pennsylvania in 1832, after which he attended the post-graduate lectures and clinics at the New York Hospital. At this time cholera was raging and Dr. Wildman did active duty assisting the afflicted. He practiced medicine for several years in Bucks county, Pa., but owing to ill health was compelled to select some other profession. He studied dentistry under the tutelage of Dr. John Burkey, a prominent practitioner of Philadelphia, and commenced practice in 1836. Later the Pennsylvania College of Dental Surgery conferred on him the honorary degree of Doctor of Dental Surgery. He first conducted a general dental practice, but having a leaning towards the prosthetic branch, it later became prominent in his practice. While he did not confine himself to it strictly, it was along this line that he made his name and fame in the dental world. He was an artist in carving and coloring teeth.

The same year he commenced practice, (1836). He began experimenting to improve the manufacture of porcelain teeth. His success in this was his crowning achievement. This work he continued until about 1849.



E. Wildman
1866

Wildman was the first to produce a life-like translucency in porcelain teeth. His formulas were used by the leading carvers of block teeth, an important branch of prosthetic dentistry prior to the advent of vulcanite. No better or more life-like work has since been produced than this accomplished at an early period, by those who had mastered this method of constructing dentures. It unfortunately has become nearly obsolete through the demoralizing influence of vulcanite and molded block teeth.

He improved porcelain tooth bodies and enamels, perhaps to no greater extent than did some others, but as he freely shared these improvements with his compeers, while others did not, his work resulted in a material advance in the art. Dr. Wildman was an artist in porcelain tooth carving. He had the knack of imparting to them a natural character and expression. This was in marked contrast to artificial dentures generally seen, a little more than half a century ago. Porcelain teeth exhibited by him at the Franklin Institute exhibitions held during the early forties, were highly commended for their strength and life-like appearance. This endorsement of his work and of his skill, has the more force because the judges were very guarded in passing upon matters not strictly within the domain of the mechanical arts to which the Institute is mainly devoted. The Institute conferred a silver medal upon him for his skill in 1844. Giving due credit to all that others have done, we say safely that Dr. Wildman's efforts did more to make porcelain artificial teeth acceptable to the profession than did the efforts of any one man that preceded him, or any that has followed.

While much progress has been made prior to his efforts it was for the most part by men who kept to themselves the formulas and processes they found acceptable. On this account, while a few used it successfully, and produced excellent work, the best efforts of many were far from satisfactory. The general run of porcelain teeth was in appearance, lifeless; they were of a dull color, opaque, and bore but little resemblance to the natural organs they replaced. The gum portions in color varied from a passable gum color to a ruddy purple, some indeed, almost sky-blue. Gold was relied upon to produce this gum tint. Some merely reduced the gold to fillings, and then ground it in a mortar with other ingredients to an impalpable powder, fused it in a crucible or muffle, and then repeated the grinding, thus forming what is technically termed "frit." Excellent results were obtained at times by this process; it, however, laborious, and with all possible care the result was uncertain. Others used the purple of Cassius, a most tantalizing compound

that has baffled the attempts of many expert chemists to unravel the secret of its composition. Whether made by the wet process or the dry, either producing a satisfactory product from a chemist's standpoint, the worker in ceramics could not depend upon its producing the desired tint. It might prove satisfactory in one piece of work and ruin the next. Dr. Wildman set for himself the task of bringing order out of this chaos. For several years he worked steadily on the problem, and was well nigh discouraged before success crowned his efforts. He modified the dry process and reduced it to an exact chemical operation giving an unvarying product. This he practically gave to the profession. It was soon generally adopted and a natural and pleasing gum color made porcelain artificial teeth much more acceptable than they previously were. His formula for "gum frit" may be found in Litch's "American System of Dentistry," Vol. II, page 965. He was an expert in continuous gum work and block carving, and he translated from the French, Delabarre's *Treatise on Porcelain*.

Dr. Wildman was a close student and experimenter on many subjects relative to the mechanical side of dentistry. His researches upon vulcanite and celluloid are to-day the standards upon those subjects. At the time they were made but little was known regarding them. He spent many months looking up all that was on record regarding combinations of caoutchouc, gutta-percha, and other vulcanizable gums, and experimented in his laboratory, uniting them with various hardening and coloring matters, until the injurious effects of the solvents used seriously impaired his health, and compelled him to stop. The results of these experiments were published in "The Dental Times," a quarterly periodical published by the Faculty of the Pennsylvania College of Dental Surgery from July 1863 to April 1873, of which Dr. Wildman, associated with other members of the Faculty, were editors.

He perhaps was the first to closely examine the chemistry of vulcanizing, and to determine how it should be conducted to obtain the best results. This information was given to the profession in a little text book entitled "Wildman's Instructions in Vulcanite Work." This was first published in 1865, and had a number of editions and was the recognized authority on this subject. His research, and his experiments with celluloid, did very much towards the success achieved with the material during the time that the onerous and humiliating terms demanded by the owners of the patent upon vulcanite caused many dentists to abandon its use.

He was impressed that free mercury existed in vulcanized rubber with vermilion. To demonstrate this he scraped the rubber, and observing that

this brought to view minute round globular bodies he then placed a globule of mercury on the scraped rubber and broke it up into minute globules which he thought resembled closely those found in the rubber. To some this was not satisfactory, for, no matter how small a globule of mercury was, it always reflected light rays; the globules found in the rubber did not. Dr. Wildman, concluded that this was due to a slight oxidization.

Harris' "Principles and Practice of Dentistry," 13th edition, 1901, pages 1016-18, gives Professor Wildman credit for the vulcanite formula, and also contains some interesting descriptive matter relative to the physical and chemical properties of vulcanite and sulphur, and microscopical test for mercury. An account of this may also be found in Litch's "American System of Dentistry," Vol. III, page 695.

He also studied extensively the chemistry and mathematics of alloys and the refining of gold, the results of which he published in "The Dental Times" under the title of "Rules for Alloying Gold." These formulas are also published in Litch's "American System of Dentistry," Vol. III, page 850. While he did not devise any process, his articles were both interesting and instructive. In "The Dental Times," July, 1864, page 1, Dr. Wildman reports a case of artificial "Nose and Hard Palate," which he treated in 1863. This patient was a young man of 26, who had sustained the loss of his nose by tertiary syphilis; the external nose was gone as well as the nasal bones and nasal process of the superior maxillary and palatine process and the turbinate bones were all destroyed. (Fig. 1.)

Dr. Wildman treated this case by making an appliance of hard rubber vulcanized over a frame of gold and platinum. (Fig. 2). The nose was painted with oil color to give it a flesh-like tint, by Chas. Berger, artist of Philadelphia, and when finished had the appearance shown in (Fig. 3). The artificial nose when first placed in position was perfect in adapting itself to the surrounding tissues; it was looked upon as a fine piece of work by Prof. S. D. Gross, Dr. Frank Maury and Prof. Pancoast, then surgeons at the Philadelphia Almshouse Hospital. Dr. Wildman avoided unnecessary pressure to prevent absorption. When the nose was first worn and for some time after it was a success, but the face seemed to fall in—as it would have done anyhow, nose or artificial nose—then it protruded some. Plastic surgery was then in its infancy, and for the time this piece of work was worthy of mention. The spectacles were used to cover up the joint above where the nose met the frontal bone, they were to hide the joint, but the patient did not want to wear them.

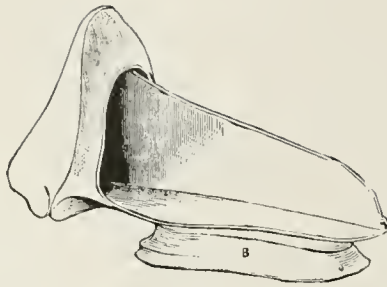


Fig. II.



Fig. I.



Fig. III.

A better idea of this work may be obtained from "The American System of Dentistry" (Litch) Vol. II, page 1096. * * * in early life he did some painting both of portraits and scenes. As a hobby he experimented with the daguerreotype, almost as soon as the process was announced, and did some excellent work, far better than many professionals have accomplished. Many specimens of his work were loaned to the Centennial Exposition, and through some mishap were lost.

He was elected Professor of Mechanical Dentistry and Metallurgy of the Faculty of the Pennsylvania College of Dental Surgery, June 13, 1862, and continued in this capacity until his death. He was Dean of the Faculty for one session, 1876. As a teacher Dr. Wildman was appreciated by the students, his lectures were interesting and were illustrated, and impressive. He was a thoroughly conscientious teacher, and one of the best posted men in his branch at that time.

Being of an extremely retiring disposition he was not overly active in dental society work. However, shortly after beginning his college connection he became a member of the Pennsylvania Association of Dental Surgeons, April 7, 1863. He was also a member of the Academy of Natural Sciences, and the Franklin Institute of Philadelphia.

He was actively identified in secret society work. He was a member of Mount Moriah, No. 155, A. F. and A. M.; Columbia, R. A. C., Franklin Lodge, No. 5, I. O. O. F.; Siloam Encampment, I. O. O. F., and in 1858 was elevated to the exalted office of Grand Master of the Grand Lodge of Pennsylvania, an office he filled with distinction. His career in Odd Fellowship is as follows:

He was initiated into the order in Franklin Lodge, May 8, 1845, and became a regular attendant at its meetings. In 1846 he was elected Assistant Secretary, passing regularly through the chairs. He was installed Noble Grand, January 13, 1848. He was admitted to the membership in the Grand Lodge in 1848, and was a representative of Franklin Lodge to the Grand Lodge a long series of years, to the honor of the lodge and his own credit. He was appointed in 1854 Worthy Grand Conductor of the Grand Lodge. In 1856 he was installed Right Worthy Deputy Grand Master. In 1858 he was installed into the office of Most Worthy Grand Master, an office whose duty he discharged with extraordinary assiduity.

He compiled a great amount of statistical, analytical and historical data relative to the Grand Lodge and made careful analysis of the most important decisions for the general information of the order. He was appointed on

many important committees, especially serving with merit on the Committee on Law.

April 25, 1861, P. G. M. Wildman moved the following preamble and resolution which were unanimously adopted:

“Whereas, The Government under which we live is now assailed by an armed body in open rebellion thereto, and designing its overthrow, and as it is one of the first duties taught an Odd Fellow that he shall be faithful to his country; therefore,

“Be it resolved, That every member of this lodge who, in the performance of his duty, shall enlist for the defense of our Government, shall be kept in good standing while in service, and that the lodge will protect his family from want.”

Another resolution he offered was, that the lodge would protect and care for the families of enlisted soldiers during their service at the front. December 5, 1857, a handsome silver set was presented to Past Grand Master Wildman by Past Grand Sire James B. Nicholson as an evidence of the high esteem in which he was held.

Dr. Wildman was married in 1852 to Miss Alice Wright, who is still living, aged 81. To them were born four children, Elizabeth, William Wildman, D. D. S., of Philadelphia; Silas Wildman, M. D., of Haddon Heights, N. J., and Edward Wildman, of Haddon Heights, N. J. Dr. Wildman for a number of years had suffered from a fracture of the superior maxilla, due to having a tooth extracted by Dr. John Burkey, who used a “turn key,” an instrument much in use at that day. He had violent attacks of neuralgia, followed by swelling of the parts, when small fragments of dead bone were exfoliated.

The principal cause of his illness during his later years was cardiac hypertrophy with fatty degeneration. Often he was compelled to leave a patient in the office and go to the door of his home for air and wait till the attack passed. He thoroughly realized his condition and often spoke to his family, telling them his life was very uncertain, that he was likely to pass away during one of these attacks. July 25, 1876, accompanied by friends, he spent the day at Atlantic City, hoping that a day at the seashore would prove a beneficial rest. On his return toward evening, with a satchel full of specimens of sea-water and vegetable decompositions, etc., to be examined microscopically, he had proceeded but a short distance from the ferry landing when he fell. The strain of ascending a steep incline brought on heart trouble, and in a moment he had passed to the great beyond. His remains are buried in Mount Peace Odd Fellows' Cemetery, Philadelphia.

Dr. Wildman was of a marked and modest disposition, very companionable

when one sought him out, always ready to impart or to receive information, but inclined to keep himself in the background. He made no religious profession, but he was an honest man in every respect, always doing the very best that could be done under all circumstances. He was always reading or experimenting—in this he found much happiness. A difficult problem he would stick to for years, until he would conquer it. At his mechanical work everything must be just right or he would begin all over and do it again. He loved to stroll in the country and gather specimens of plant and mineral curios for microscopical examination, and sea fishing was his favorite amusement.

The writer of his obituary in the "Dental Cosmos" says:

"As a man he was honorable, generous, genial, sympathetic, always ready to impart knowledge to those who asked; remarkably modest and unassuming. He did not appear anxious to make friends or to secure confidence, but those who once learned to trust him never had cause to regret it. The confidence he won he maintained to the end. He occupied and deserved a high position in his profession and will be kindly remembered."

The principal facts contained in this sketch were obtained from Elias Wildman, M. D., Haddon Heights, N. J., son of the subject of this sketch, and from "The Dental Cosmos," Vol. XVIII, page 489, 1876.

JAMES LESLIE, D. D. S.

PIONEER MANUFACTURER OF GOLD-FOILS, EXPERT METALLURGIST, AND EDUCATOR
OF ARTISANS.

The death of James Leslie, which occurred February 8, 1905, at Cincinnati, removes an interesting personage. Although not a practicing dentist he has been closely identified with dental interests and progress for sixty-one years, and possible has more materially contributed to the production and perfection of gold as a filling-material than any other one man in America.

James Leslie was born in Edinburgh, Scotland, August 16, 1819. His parents were John and Margaret Scott Leslie, both born near the village of Stromness, Orkney Islands. After their marriage they moved to Edinburgh where the father followed his trade as a straw-bonnet maker, and where James was born and received his primary education in the schools of his native city. His father died and his mother married John Bruce, who, in 1834, with the five Leslie children, John, William, Margaret, James, and Andrew, emigrated to America and located at New York City. Andrew M. Leslie, the older of the boys, who served an apprenticeship with a gold beater in Edinburgh, began working at his trade in New York.

Here James became an apprentice of his brother and mastered the trade that afterwards made his name familiar, and his products respected by the whole profession of the Middle West, and South.

At that period, 1837, there were only two standard foils on the market; those of Marcus Bull, of Philadelphia, and Joseph Haynes, of New York. The Leslies worked with the latter. During their residence in New York they became acquainted with the Parmly family, who at that period were prominent as dentists. Levi, Samuel, Jahiel, and Eleazar, were their friends; especially Eleazar, who was their Sunday-school teacher and who greatly encouraged them, both by buying their gold and by good advice.

In 1838 James Leslie removed to Cincinnati and began business for himself. He found his new field of labor a fertile one, and soon persuaded his brother Andrew to locate in Cincinnati. This he did, and here they became



James Leslie, D.D., C.

the pioneers in their trade throughout the entire Western country. Their first place of business was on Fourth Street near Elm.

In 1842 James attended one course at Bethany College, West Virginia, and returned to Cincinnati to continue the business, while Andrew entered into the active study of dentistry.

In 1845 the Ohio College of Dental Surgery was established by the eminent James Taylor and his associates, who were its main support for a number of years.

Both the Leslies had a desire to learn the profession, having been so influenced when lads in New York City by the Parmlys. On consulting their finances they found that they could not enter the same class, and decided that A. M. Leslie should first enter, which he did in 1845. It was agreed that what he might learn during the day should be imparted to James at night. Andrew, in the evening, reviewed with James the instruction he had received during the day. It was but a short time before it was known that in the working of gold, Andrew knew more than his teachers. He graduated in 1847, and shortly after was appointed Professor of Mechanical Dentistry. He opened an office in Cincinnati, and very soon had the reputation of a skillful dentist, and obtained an increasing patronage.

Twelve years later Andrew located at St. Louis, and, opening a dental depot, was instrumental in greatly promoting professional progress in that city. He was publisher of the "American Dental Review,"¹ and mainly due to his efforts, the St. Louis Dental Society was organized in 1856.

During the early years of Andrew's practice in Cincinnati, James assisted him, but still continued the manufacture of foils, and when Andrew located at St. Louis, James also opened, at Cincinnati, a dental depot which he conducted for twelve years.

He became a stockholder and trustee in the Ohio College of Dental Surgery, was its secretary and treasurer for fifteen years, and frequently lectured to its students. In recognition of his ability and his contributions to professional advancement, this institution conferred upon him the honorary degree of Doctor of Dental Surgery in 1872.

Dr. Leslie was one of the organizers of the Mississippi Valley Association of Dental Surgeons, and was active in its affairs, and in contributing to the success of this society. Before it he read several valuable papers on gold foils. In October, 1904, Dr. Leslie called on the writer and, in conversation, reviewed his early experiments and the difficulty he had in introducing his

¹ A quarterly, published at St. Louis, Mo., 1858-1863.

products. The foil of Marcus Bull, of Philadelphia, was much preferred, and was considered a standard in those days, and he had a hard task persuading the profession to change and use his instead.

Bull's foil was not cohesive and as the universal practice among dentists then was filling cavities with gold by wedging methods, this foil was acceptable, as it always worked soft and packed easily.

A few years afterwards Leslie could produce foil with the same qualities. Softness and pliability were then the main qualities desired, and he noted that his foil would be softer some time after it was made, and thus obviate the use of reagents to produce non-cohesive gold during the process of its manufacture. The thought occurred to him in connection with the cohesive quality of his foil that it might be a valuable factor in filling teeth. He desired to test it, and persuaded a friend, Dr. N. Clute, of Louisville, Kentucky, to try it, fully explaining to him his theory, and demonstrating to him the remarkable cohesive properties his gold possessed after annealing.

At that time no dentist ever thought of annealing gold foil. Dr. Clute had a patient just to suit the case. He filled the cavity and was delighted with the result. A few years ago when the subject of cohesive gold was discussed, Dr. Leslie wrote to Dr. Clute, who claims he was the first dentist to fill a cavity with cohesive foil, and attain the same results claimed by Robert Arthur fifteen years afterwards in his book on "Adhesive Foil."

Robert Arthur, Amos Wescott, and Wm. H. Dwinelle, as well as James Leslie, claim to have *first* discovered the practical cohesive properties of gold foil.

To properly present the claims and contentions of James Leslie, I quote part of his paper, "The Origin of Cohesive Gold Foil and Contour Filling."

"In giving the history of cohesive gold, I desire to state all that has been claimed by eminent practitioners in its discussion for forty years, including the last claim and defiant challenge of that eminent dentist, Dr. Dwinelle, made as late as May, 1890, whose numerous and remarkable inventions and appliances in aid of the practice of dentistry all honorable men delight to honor. In the discussion of this theme there appeared in the "Dental Cosmos," during the year 1869, an article from Dr. Amos Wescott, stating he was the first to discover this property of cohesion in gold foil, and apply it in the operation of filling teeth.

"Dr. Louis Jack, in reply, dissents from the claim of Dr. Wescott, stating that he had never heard of or seen an operation performed with that form of gold till he saw it done by Dr. Robert Arthur, and refers to his excellent

treatise on the 'Use of Adhesive Foil,' published in 1857. Those claims surprised dentists in the West, who for many years previous to that date had been and were using what was well known by the first name it received, 'sticky' or adhesive foil.

"The first public claim I made of being the discoverer and introducer of cohesive gold foil was in a paper I read at a convention held at St. Louis, in 1875, entitled 'The Properties of Gold Foil as Adapted for Contour and Other Fillings,' which was published in the 'Missouri Dental Journal,' Vol. VI., page 129, 1874, and copied by the 'British Journal of Dental Science,' February, 1875. I had deferred making a public claim till I thought the last claimant had appeared, but another has developed in the person of that distinguished operator, Dr. W. H. Dwinelle, and he is the last and most pronounced, ending with a challenge that cannot be ignored. I quote from the 'Dental Cosmos,' May, 1886, page 296. Speaking on gold foil he says,—

"'Occasionally a gold beater would, by over-refining his gold, produce a 'sticky' gold, as he termed it, regarding it as a misfortune. Not till Dr. A. J. Watt and myself were engaged, some thirty-two years ago, in experimenting for the purpose of developing crystal gold, was it known that it was one of the inherent and peculiar characteristics of gold that when it is reduced to a state of absolute purity it is cohesive. * * * That was the first time a systematic method of producing cohesive foil was known.'

"Again I quote from Dr. Dwinelle in the 'Cosmos,' May, 1890, page 385, and this is the last claim I know of:

"'A word in reference to Watt's crystal gold. Because Watt's crystal gold has an existence, contour fillings are possible, and they were never possible before it existed.

"'In the great principle that was developed in the production of crystal gold, that absolute pure gold is always cohesive, and that one of its inherent characteristics is that it is adhesive, we had presented to us a plastic material which we could build up into independent forms. And so the birth of contour filling came by virtue of Watt's crystal gold, because in making that discovery others followed, and adhesive gold came out of it. I defy anybody to show an instance wherein adhesive gold foil was manufactured systematically and continuously before Watt's crystal gold was discovered.'

"In introducing my claim, I premise by stating that my brother, Andrew M. Leslie, and myself were practical gold beaters, and began business in the year 1838 in Cincinnati. As a branch of our business, we engaged in the manufacture of gold foil, and had to refine all the gold we used. At that time

there were only two or three men who made gold foil in the United States, and such was the popularity of Marcus Mull's foil, no other maker thought of competing. It was thoroughly non-cohesive, and quite red in color. The mode of its manufacture was quite a secret, but not to me now.

"We could not produce it then, but by our careful method of refining we secured the opposite, a remarkably cohesive foil. I read with great interest all that the claimants for the discovery of this property had written, and deemed it necessary that I should gather what evidence I had, as I had also a claim for discovery, antedating all others; and now I will detail facts just as they occurred in the year 1839.

"I was on a visit to Louisville, Ky., and visited Dr. N. Clute, of that city. I introduced my gold, and my theory that it might be made useful in filling teeth. I showed him foil that was just as non-cohesive as Bull's foil he was in the habit of using; but when I showed him how he could anneal foil, demonstrating the wonderful property produced by heat, in that which was a non-cohesive foil of my manufacture, it was a revelation that excited his wonder. He grasped my thought, and with a confidence in the potency of the new power developed, he immediately put it in practice, filled a cavity as I annealed it, and for the first time in the history of dentistry a contour filling was made. In getting my evidence, I concluded to write Dr. N. Clute, knowing that he could not forget that most interesting occasion to himself as well as to me. I wrote him, giving him an account of the rival claims, and reminded him of our meeting and mutual surprise of an event that did occur years before the claims were made by persons named in this paper. I received from Dr. N. Clute, in answer to my letter, the following reply:

"COXSACKIE, June 15, 1870.

"JAMES LESLIE:

"DEAR SIR,—I have just received yours of the 13th inst., and in reply to your statement that you manufactured adhesive gold-foil in the year 1839, I can and do testify, as I used no other in my practice when it could be had. I also, about the same time, had it manufactured in Pittsburg, but I sent back many ounces because it was not adhesive; and I attributed the quality to its purity and to the perfect annealing it had received. Yours was so sticky that the leaves could not be separated if they but touched each other. When I left Louisville, five years ago, I retired from the profession in which I labored forty years with some profit to myself, and I hope, to my patrons and to the profession. I am now living on the banks of the beautiful Hud-

son, where I shall probably spend the evening of my days, cheered by the recollection that I have been faithful in the discharge of my duties. If I can do you any service let me hear from you.

“Yours,

“N. CLUTE.”

“Thus, for sixteen years before Dr. Arthur and his treatise on ‘Adhesive Foil,’ or Drs. Dwinelle and A. J. Watt had written about adhesive foil, the article had been ‘systematically and continuously’ made by me and used by Dr. N. Clute; as also by M. Rogers, W. M. Hunter, John Allen, W. H. Morgan, George Keely, James Taylor, and others, who had the genius to perceive its value and the skill to use it.

“The claims of Drs. Dwinelle, J. Taft, and others, that crystal gold possessed the welding property superior to gold-foil, was opposed by Dr. A. M. Leslie, who stated that ‘we must claim to having, in 1854, first brought before the profession the fact that gold, in the cold state, would weld.’ This fact was drawn out by the position taken by the advocates of crystal gold who claimed it possessed the welding property which foil did not.

“At the 1854 annual meeting of the Mississippi Valley Dental Association (see “Dental Register,” Vol. II,) the following discussion occurred:

“Dr. Blakesley was an agent sent to introduce the Watt’s crystal gold-foil.

“‘Dr. Blakesley said, ‘He uses Watt’s crystal gold-foil for filling. He understood they had a peculiar mode of refining it which others did not possess: never could build out before he got Watt’s foil or sponge gold.’

“‘Dr. James Taylor thought building out gold to restore the form of the tooth was frequently carried too far for the safety of the filling, and unnecessary for the preservation of the tooth. He had done some of it for glory, but when does it pay? He thought that in back teeth it should only be done when antagonizing was very much needed. He had been using adhesive foil for several years made by James Leslie, of Cincinnati, and had no need of anything more adhesive. He alluded to the experiments made a year ago before the association by this gentleman, in which he explained the mode of annealing foil, and demonstrated the adhesive property of pure gold when in the form of foil. Dr. Taylor also showed the finger-ring made by Dr. A. M. Leslie from scraps of his adhesive foil without melting or soldering, and which was held together by the adhesive property alone in the gold: he had now worn it constantly for one year, and it was evidently as good as the day he put it on.’

“I now conclude my historie evidence on cohesive foil by quoting some

parts of a most interesting 'Report on Dental Progress,' prepared by Dr. A. M. Leslie, published in the 'American Journal of Dental Science,' Vol. V., p. 239 1855:

"It will probably be remembered by those who were present at our last annual meeting (1854), that when this point (adhesiveness of foil) was under discussion, the writer briefly alluded to the property possessed by gold of uniting firmly or welding by simple pressure.

"He also stated that gold-foil could be made, without any difficulty, which would possess the adhesive property when annealed that simply the weight of one leaf laid on another would forever unite them at the point of contact. Fifteen years ago just such foil was made and supplied by the firm alluded to, to a prominent member of the profession in the West; and while he would use no other, other operators they supplied preferred another kind. He accounted for it by saying they knew not how to use such as he preferred.'

"The testimony now submitted proves that from the year 1839, *I systematically and continuously made adhesive gold-foil till 1880*, when I gave up that branch of my business, so that instead of being indebted to Drs. W. H. Dwinelle and A. J. Watt for the discovery or introduction of cohesive foil, the profession had it many years before either of them knew anything about it, and it is remarkable that cohesive foil still maintains its high position as a filling-material, notwithstanding the excessive malleting it has received, and that, too, with small pointed pluggers.

"I finish my evidence by quoting from Dr. James Taylor, the beloved and pre-eminent the father of dentistry in the West, that he used adhesive foil in 1850, five years before the claims of Dr. Dwinelle were made (see "Dental Register," Vol. IV., p. 15). 'Well do I remember the first filling I attempted to introduce, with my foil cut into strips and with foil such as recommended by one of our best dentists. The foil was rather hard, yet adhesive, so that when folded it would stick together; it made a hard plug and bore a fine finish.'

"The history I have given establishes the following facts:

"First. That I made and introduced cohesive gold-foil in the year 1839, and that Dr. N. Clute, then of Louisville, Ky., was the first dentist to make a contour filling.

"Second. I made it systematically and continuously over fifty years; that it was always cohesive when made, and became non-cohesive by exposure and age; but became instantly cohesive by annealing.

"Third. That it was used in that way by the most prominent dentists in the West, some of whose names I mention.

"Fourth. That it was referred to by Dr. James Taylor at society meetings in 1850 and 1857 as having been used by him for several years.

"Fifth. Dr. A. M. Leslie states he knew it to have been made by me fifteen years before crystal gold was introduced.

"The conclusion is inevitable and just, that Andrew M. Leslie and James Leslie are the first discoverers and introducers of cohesive gold-foil to the dental profession."

The fall of 1904, during the St. Louis Exposition, Dr. Leslie called at the writer's office and spent a couple of hours reviewing his past experiences. He proved an interesting conversationalist and made the following statement regarding amalgam: "Another discovery we made was that of an amalgam. In 1842 a party appeared in Cincinnati proposing to fill cavities of and repair teeth without pain and cheaply. A dentist, George Evans, called on us, anxious to know what this material was composed of, which was securing quite a trade in the city.

"We told him we did not know, but if he would secure some of the compound out of a cavity that had just been filled and bring it to us, we would try and find out. He did so, and for a day and night we experimented and tested the mass. It was a pliable, mineral compound with some silver in it, all held by some strong cement. The result of our experiments was to produce an amalgam of silver and tin which became quite hard during the night. We showed Dr. Evans what we had, and requested him to secure a patient so that it could be tested in the mouth. This was done, and deemed altogether a different and superior article to that he gave us. He then said he was about to travel and wanted a supply, but had not money to pay for a quantity, but proposed as his father, Platt Evans, was the fashionable tailor of the town that he would give each of us a suit of clothes in payment.

"We agreed and we never had a better suit than those the first profitable results of our amalgam product. Other dentists began to find out that we were making amalgam, mercury being used, and prominent men began to condemn it, so that we began to feel anxious about our reputation, but there were calls for it and its sales increased. Just at this time Dr. W. M. Hunter, our friend and the most accomplished man of the profession in minerals and metals used for dental purposes I ever knew, was told about our composition, and he experimented and concluded that he had made an improvement and offered it to the profession, under the name of 'Argentine,' but it was denounced by the leading men of the profession at dental conventions. At one of the national conventions Dr. E. Townsend and others

opposed its use; still after a few years' experience and use of amalgam Dr. Townsend and others changed their views on the condemned composition. Other parties made the article, and to this day its virtues whatever they may be culminated in the 'New Departure' by that eminent practitioner, Dr. J. Foster Flagg. The profession is indebted to the accurate and scientific experiments on amalgams by that eminent dentist, Dr. G. V. Black, and it is a remarkable fact, that we in our tentative experiments should have empirically hit upon an alloy which he says is 'the best of the lot.'"

Dr. Leslie's last discovery, 1877, was the production of a gold crystallization which was valuable not only as a filling-material, but as a scientific product in metalurgy. A specimen was sent to the mint in Philadelphia to be assayed. The mint-master reported it as 999.6 fine. Owing to ill health Dr. Leslie could not manufacture and put this product on the market, but he made four trips to Europe introducing his gold and was awarded diplomas by several societies and expositions. The Austrian government gave him a gold medal.

In the early Abolition days he was a staunch advocate of freedom of the colored race and was one of those prominent in the Anti-Slavery movement in Cincinnati with such men as Salmon P. Chase, Gamaliel Bailey, A. Hamilton, Samuel Lewis, and others, who were identified with this movement and the organization of the Republican party. He was also a firm believer in woman's suffrage.

He was especially fond of working boys and young tradesmen, and was known as "The working boys' true friend."

When a young man he became interested in the Birkbeck Institute of London and an institute of Edinburgh conducted along similar lines, and when he located at Cincinnati became interested in the Ohio Mechanics' Institute which had been organized in 1828. The purpose of this institute is to educate young people of limited circumstances in Art, Mechanics, Architecture, Electricity, and Drafting. It has done an excellent work. This institute, like the Cooper Institute in New York and others of the same kind, had for their chief promoters vigorous Scotchmen of the type of James Leslie.

Dr. Leslie was one of the trustees, a director, and president for twelve years, retiring from that office in 1904, on account of ill health. He was deeply interested in this work and his last thoughts and parting words before his death were "Give my love to the boys," whom he had done so much to educate. His memory is permanently perpetuated by the institute naming one of their buildings "Leslie Hall" in his honor. This Hall contains his bust, the work of the students of the institute.

He was also interested in the boys and girls of the House of Refuge and did much to encourage them and make their lot cheerful. In 1839 he joined the Cincinnati Church of Disciples, now the Central Christian Church, of which he was one of the leading members and an officer of this organization at the time of his death.

In 1852 he was married to Miss Rachel March, daughter of the proprietor of the historic "Galt House of Cincinnati," she died in 1853; and later he married Miss Elizabeth Orange, of Kentucky. To them six children were born, all of whom are dead but a daughter, Mrs. J. W. McGraw of Chicago.

At the age of eighty-seven years he succumbed to pneumonia and was interred in Spring Grove Cemetery, Cincinnati. He leaves a record as an expert metallurgist, inventor, and educator whose life outside of his own professional and business pursuits was well rounded with good deeds and largely devoted to the interests, training, and education of the artisan class.

JOHN HUGH McQUILLEN, M. D., D. D. S.

"A PIONEER IN THE SCIENTIFIC DEVELOPMENT OF DENTISTRY."

The subject of this sketch was born in Philadelphia, February 12, 1826. He was the son of Captain Hugh McQuillen, who served under Decatur in the War of 1812, and Martha Scattergood McQuillen, whose ancestors came to the Western Continent with William Penn: one of them, Thomas Scattergood, being a prominent Quaker preacher of historic fame.

He received his early education in the Friends schools in Philadelphia, and at the age of sixteen entered as a clerk in an importing house with the purpose of devoting himself to commercial pursuits. His tastes, however, inclined him to medicine and after attaining his majority, in 1847, he began studying for this profession; meanwhile, dentistry attracted his notice and he also began its study, with Dr. Elisha Townsend, a famous dentist of Philadelphia, and began practicing dentistry in 1849. From about 1852 to 1861, he was associated with Dr. Daniel Neall, another well-known practitioner of the day for whom he named his son, Dr. Daniel Neall McQuillen, now practicing in Philadelphia, at the same time continuing his course of medical studies at the Jefferson Medical College, from which he graduated with the degree of M. D. in 1852.

After this Dr. McQuillen devoted the balance of his life to the practice of dentistry in Philadelphia, where he became a recognized authority as a writer, teacher, investigator and practitioner. He received the honorary degree of D. D. S. from the Philadelphia College of Dental Surgery at its first commencement, February 28, 1853. Dr. McQuillen was ever active in anything that would promote the interest or raise the standard of dentistry. He was a marked power in dentistry in Philadelphia and the whole country, and did much work at a great personal sacrifice. No man in Philadelphia was more devoted to the profession or did more to elevate it. He was elected a member of the Pennsylvania Association of Dental Surgeons, December 4, 1849, and later became its president.

In 1875 he was one of a committee of five appointed by the Pennsylvania



J. H. M. L. L. L.

State Dental Society to frame a bill regulating the practice of dentistry in Pennsylvania. Dr. McQuillen was, by nature, an organizer. The original suggestion for the creation of the American Dental Association, which succeeded the old American Dental Convention, came from the pen of Dr. McQuillen in an article entitled "Basis of a National Dental Association," in which he advocated its organization. This article was published in "The Dental News Letter," Vol. XII, April, 1859, page 184, over the signature of "Junius."

He was present at the organization of the American Dental Association at Niagara Falls, August 31, 1859, as a delegate from the Pennsylvania Association of Dental Surgeons. He was chairman of a committee to draft its constitution, and until his death he was an active attendant upon its meetings and materially aided in building up the society. He was elected its president, in 1864. October 17, 1866, Dr. McQuillen and a few others organized the Association of Colleges of Dentistry, an organization which preceded the present Faculties Association, and he was elected the first corresponding secretary. He was active in organizing the Pennsylvania State Dental Society, and was elected to its presidency. Dr. McQuillen was also the organizer and the first corresponding secretary of the Odontographie Society of Philadelphia, which was organized May 19, 1863, and he was elected president of the same society from 1868-70. He was also a member of a number of other societies both at home and abroad, notably the Odontological Society of Great Britain, to which he contributed many papers. For many years he was an active member of the Academy of Natural Science of Philadelphia, and was especially interested in the work of its biological and microscopical section, of which he was the founder. He was accustomed to spend many of his leisure hours at the Academy building. He was a naturalist by nature, and fond of outdoor life, especially of riding and walking in the country, which was his chief recreation.

From 1852 until 1859 he was a frequent contributor to "The Dental News Letter," published by the firm of Jones, White & Co. August 1, 1859, this journal was succeeded by the present "Dental Cosmos," under the joint editorship of Drs. J. DeHaven White, J. H. McQuillen and George J. Zeigler. Dr. McQuillen had charge of the scientific department. Dr. White continued editor-in-chief until July, 1865, when he was succeeded by Dr. McQuillen, who by this time was favorably known and recognized throughout the dental world as an authority on all subjects pertaining to dentistry. He was a practical investigator in histology and other branches of our science, as well

as a teacher and writer of ability. He was particularly interested in microscopical work, and laid great stress upon practitioners supplying themselves with microscopes to carry on the study. Dr. McQuillen continued as editor-in-chief of the "Dental Cosmos" until January, 1872, when, overburdened with cares in his large practice and the arduous duties of his professorship in the Philadelphia Dental College, he was compelled to relinquish his editorial work, desiring to devote his spare time to original research in his favorite field, dental histology.

On retiring from the editorship he gave in his valedictory the following statement of his views upon the basis of a higher professional standard and his conception of his duty as an editor:

"In the discharge of the editorial duties, the primary object has been the elevation of the professional standard to the highest point of excellence. Recognizing that this could not be promoted by harping upon a single theme, the effort has been made through the medium of editorials and other communications to touch every chord likely to secure a response tending toward awakening the desire of self-culture, which is characteristic of the age, that would result in a broad and thorough, rather than a fractional, mental development on the part of members of the dental profession, so that as a body it could bear a favorable comparison with other liberal professions. To this end a thorough academic and collegiate education has been insisted upon for those who desire to enter the ranks of the profession, and also the passage of laws making such education not a matter of choice but of compulsion on the part of dental students before they can engage in practice. All efforts at reform that stop short of this will prove futile, and the laws framed for the punishment of charlatans will be of no avail so long as the road by which quacks can enter the profession is freely open. Prevention is always better than cure, and in this matter *thorough education* is the only reliable remedy both as a preventive and a cure."

His prophecy of a third of a century ago has, indeed, become a reality as well as a necessity to the profession.

Dr. McQuillen was a most conscientious and skillful operator, and was thought by some to be the originator in opening up proximal cavities from the occlusal surface. He was an interesting and instructive writer. Many of his articles attracted special attention, and were copied in the leading journals in America and Europe. Without a doubt, he was the best known dentist of the day in this country. He numbered as his friends many of the most distinguished men in medicine, art and literature. On his fiftieth birthday a large company assembled to honor the event. Probably a more brilliant gathering of prominent men never assembled in Philadelphia to honor a man in private life.

Dr. William H. Trueman says: "He kept in close touch with the best in

science and in art. He made himself acquainted with the most noted scientists, and was able to appreciate, select, put to practical use and make available, the work that they did. Few men can do this; he could and did, to perfection. A great deal that would have been lost to dentistry, he gathered, digested, and made useful to his profession. He contended that a dentist should have a well-rounded education. He called it 'a spherical education,' and was ridiculed beyond measure by many unable to appreciate his idea. He was a leader in widening out the dental curriculum so that it embraced much more than making plates and plugging teeth. His work in organizing the profession to assist in the great Sanitary Fair, held in Logan Square, Philadelphia, during the time of the Civil War, is worthy of note. That while doing so much for others he was unable to well order his own affairs is deeply to be regretted."

Many of Dr. McQuillen's writings were translated into foreign languages. He wrote on a multitude of subjects, some of which follow:

"The Necessity of Root Filling," "Epiphora," "The Anterior Permanent Molars," "Membranes," "Non-Vascularity of Human Dentine," "Sensitive Dentine," "Are the Dental Fibres True Nerve Fibres?" "Management of Light in the Performance of Dental Operation," "Caries Arrested by Consolidation of the Dental Tubuli," "Unsuccessful Cases," "Bleaching Discolored Teeth," "Injurious Effects of the Tincture of Muriate of Iron on the Teeth," "The Interglobular Spaces in Dentine," "Clinical Instruction," "The Anatomy, Physiology, Pathology and Remedial Treatment of the Fifth Pair of Nerves," "Filling Cavities in the Approximal Surfaces of Teeth," "Dental Education," "Local Anaesthesia," "Oral Surgery," "Third Molars," "Wedge and Wedging," "Hereditary Transmission of Irregularity," "Lea's Water for Periodontitis," "Pulp Destruction," "Recession of Gums," "Absorption of Fangs of Deciduous Teeth," "Salivary Calculus," "Capillary System," "Dental Colleges," "Exostosis," "Fistula," "Microscopy of Dental Tissue," "Organisms of the Mouth," "Cuvierian Classification of Animated Nature," "Arsenic."

Dr. McQuillen took a great interest in young practitioners and their work, and many of our prominent men owe much of their success to the encouragement they received from him.

In 1857 he was appointed Professor of Operative Dentistry and Dental Pathology in the Pennsylvania College of Dental Surgery. This chair he occupied until the fall of 1862, at which time he retired from the faculty and in conjunction with Drs. J. Foster Flagg, C. A. Kingsbury, Thomas Wardle, and Henry Morton, organized the Philadelphia Dental College, which opened its first term November, 1863. Dr. McQuillen was elected dean and held that office continuously until his death. He was also Professor of Anatomy, Physiology and Hygiene. Dr. J. Foster Flagg was Professor of the Institute of

Dentistry, Dr. Charles A. Kingsbury was Professor of Dental Physiology and Operative Dentistry, Dr. Thomas Wardle, Professor of Mechanical Dentistry and Metallurgy, Dr. Henry Morton Professor of Chemistry. Dr. McQuillen was founder of the school. His manner of organizing this school was severely criticised at the time; nevertheless, he put it on a solid basis and it has proved a great success.

He labored unceasingly and untiringly until his death for the success of this institution, and stood for more thorough and broader education and better qualification of the dental practitioner. He gave his time, talents, energy and experience, sacrificing comfort, happiness, health and finally life, in order that the school which he so much loved might be worthy of the respect of the profession and of all men. The continuous strain under which he labored, added to much work and worry, was the ultimate cause of his death, which occurred suddenly March 3, 1879. He left a widow and four children.

Dr. McQuillen was an impulsive, aggressive man, called "erratic" at times. He had his sharp corners, but those who knew him have long since forgotten them and remember only the great and lasting good he did the profession at a day when great leaders were few.

Dr. Edward C. Kirk says: "I was greatly impressed by Dr. McQuillen's earnestness and his enthusiasm as a teacher and investigator in my earliest professional days. He had a strong personality, and either in teaching or in debate he had the power of impressing his hearers with the merits of his argument by a forceful manner of utterance and by a splendid command of the English language. Considering his relation to the period of his activities, he may be justly classified as one of the pioneers in the scientific development of dentistry. One of those rare men who, coming into the profession at a time when everything in practice was upon an empirical basis, he applied the scientific method to the elucidation of many of the problems which confronted him, and helped to bring about that respect for the scientific method in dentistry which has eventuated in placing our profession and our modes of practice upon a scientific basis. It is that aspect of his work more than all else which seems to me to warrant his claim to a place among the immortals of our profession.

"He was a lovable man; a generous and hospitable man; helpful to his students and to the young, struggling dental practitioner. Those who knew him, those who benefited by his teachings, by his practical helpfulness, by his wise counsel, will need no argument to justify the claim that we may well

make for him as one of the benefactors of the dental profession. He gave of his talents, his energy, his substance, and finally gave his life, for the uplifting of dentistry; and his activities covered a wide range of usefulness as teacher, investigator, organizer and promoter of every activity which tended to the elevation of our calling."

During the war of the Rebellion Dr. McQuillen frequently served as a volunteer surgeon in the military hospitals of Philadelphia, and was at the battle of Antietam in that capacity. A wounded soldier was kept at his home for several weeks for special treatment. These services were rendered free of charge both to the government and individuals. His home was always open to the students of his college, and hardly an evening passed without his having from one to twenty of them there. Many times a day one or more watched him operate. His many professional friends from other cities were always made welcome at his home when visiting Philadelphia.

A staunch Republican in national politics and thoroughly independent in municipal affairs, he was one of the early members of the Union League of Philadelphia and of the Reform Club. He had great respect for all religious bodies, but was not closely associated with any. He was a great lover of music and enjoyed nothing better than to surround himself with friends for a musical evening. He was of a most artistic temperament in all directions; a profound reader on all subjects, and possessed a very extensive library.

Dr. McQuillen was married to Amelia Donnel Schellenger, November 18, 1852. He had five children: Sallie A. (Mrs. Henry S. Carter), William S., Daniel Neall, John H., Jr., and an infant who died at birth. Dr. McQuillen's grave is in the Woodlands Cemetery, Philadelphia.

The above facts were obtained from the "History of Philadelphia" (Sharp and Westcott), Vol. II, 1884, page 1640; Class Book of 1889; Condensed History of the "Philadelphia Dental College and Hospital of Oral Surgery"; the "Dental Cosmos," Vol. XXI, April, 1879, page 226; and Dr. William H. Trueman, Philadelphia.

SAMUEL STOCKTON WHITE, D. D. S.

THE PIONEER PERFECTOR OF PORCELAIN TEETH AND FOUNDER OF THE S. S.
WHITE DENTAL MANUFACTURING CO.

Samuel S. White was born at Hulmeville, Bucks County, Pennsylvania, June 19, 1822. He was the eldest child of William R. and Mary (Stockton) White. His father died when he was eight years old. Soon afterwards his mother with her children removed to Burlington, New Jersey, where he resided until, at the age of fourteen, he was indentured to his uncle, Samuel W. Stockton, of Philadelphia, whose manufacture of mineral teeth was the first in the United States to attain any commercial importance, to learn "the art and mystery of dentistry and the manufacture of incorruptible teeth."

On attaining his majority he commenced the practice of dentistry in his uncle's office, and at the same time superintended his manufacturing department. In the following year (1844) he began the manufacture of teeth on his own account, in the garret of a dwelling-house at Seventh and Race Streets, uniting with it the practice of dentistry in an office in the same building. This was the initiatory step in an enterprise which has since grown to be the largest of its kind in the world. In a short time he removed to Race Street above Eighth, continuing both branches of his business. In 1845 he took in as partners Asahel Jones, of New York, and John R. McCurdy, of Philadelphia; in 1845 he relinquished the practice of dentistry in order that he might devote his entire time to the manufacture of porcelain teeth. The firm remained on Race Street till 1849, when it removed to a property on Arch Street below Sixth, which had been purchased and fitted up to accommodate the increasing business. In 1852 another removal to a still more commodious structure two doors below was necessitated. Branch houses were established, in New York in 1846; in Boston in 1850; in Chicago in 1858. Mr. McCurdy withdrew in 1859, and in 1861 Mr. Jones also retired, Dr. White purchasing the interests of both. In October, 1868, the imposing structure at the southeast corner of Chestnut and Twelfth Streets, which had been erected by Dr. White, and fitted up expressly for the purpose, was occupied as a manufactory and depot.

Dentistry as a fine art may be said to date its beginning from Dr. White's



Samuel S. White

entrance into business. The profession was in its infancy. The porcelain teeth which up to that time had been placed upon the market were in all respects but poor imitations of the natural organs. To his persistent efforts to produce better results were due the wonderful advances attained in the teeth of his manufacture.

The improvements in mineral teeth with which his name stands credited are numerous and important,—steady approaches toward perfection in many and various details. The older members of the profession will recall the progress made from time to time—the obstacles encountered and overcome: The translucency gained without the sacrifice of strength; the increased capability of resisting changes of temperature; the added strength with lessened bulk and weight; the modifications with special reference to the comfort of the wearer; the distinction in shape in accordance with anatomical types; adaptability to varying conformations of the maxillae; the recognition of the artistic demands in replacement—the distinctive needs of differing sex, age, complexion, nationality, and general physical peculiarities; the faithful reproduction of the manifold deviations from absolute uniformity, including the minor as well as the more noticeable features, effects to disarm suspicion of artificiality, and forms to overcome the results of irregular or excessive absorption without violating aesthetic requirements; improvements also in the mechanics of substitution,—the means of attachment to the various bases—the bell-shaped, the double-headed, and the foot-shaped pins, and modifications of form specially applicable to the different materials used as bases.” The improvements in mineral teeth with which Dr. White stands credited are numerous and important. Among them may be numbered various changes in the forms of platinum pins; such as the bell-shaped termination, introduced in 1850; the double-headed pin, in 1863; and the foot-shaped pin, in 1872. Other not less important advances are: superior resistance to high temperatures in soldering; the maximum of bulk and weight; and improvements in texture, color, translucency, and vital appearance generally; together with closer imitation of the physiological and anatomical difference in the natural teeth than had before been attained.

When the improvements above enumerated, and many others not specified, are considered, it must be conceded that the advances in dentistry as a prosthetic art from 1844 to the present time have been due in very great part to the steady approximation to perfection in all the essential characteristics of artificial teeth which the manufactures of Dr. White have so constantly maintained.

In February, 1847, the first marked recognition of his efforts was received,—a testimonial signed by many of the leading dentists throughout the country. This was followed, in 1848, by a gold medal, awarded by the American Institute of New York, and the first premium by the Maryland Institute of Baltimore. In 1849 a premium of a gold medal for the greatest improvement in the manufacture of porcelain teeth, offered by the Pennsylvania Society of Dental Surgeons, was awarded to him. From that time to the present no year has passed without testimony to the superiority of his firm manufactures in one respect or another, until medals and diplomas, from all the principal industrial institutes of the country and from all the great international expositions, confirmed the position which he early attained as the leading manufacturer of artificial teeth in the world.

Not alone, however, in the special department of porcelain teeth did his manufactures hold unquestioned pre-eminence. In its early days the practice of dentistry was more a secret art than a broad science. At the time Dr. White began to supply the wants of the profession, dentists had only just begun to make public the results of their experiments and investigations. There were no manufactories of instruments for their special uses. Such as were made for sale were supplied by the surgical-instrument makers, and included only the simplest appliances; for the most part individual dentists made their own tools. As a consequence, those which had been found useful by any one practitioner were confined chiefly to his own office or laboratory; but as their advantages became known, the desirability of placing them within the reach of others made the establishment of a manufactory of instruments specially adapted to the needs of the dentist a necessity. With characteristic sagacity Dr. White met this want, and this branch of the business extended, until the reputation of the dental instruments bearing his trade-mark became as wide-spread as that of his porcelain teeth. It is a remarkable fact and the strongest evidence of their superiority, that they hold as high a place in the esteem of the dental profession of Europe as in that of American dentists.

In appointments and appliances for the office and laboratory the various and steadily-growing needs of dental practice were constantly met,—and in an art so largely manipulative as dentistry the facilities and implements with which it is furnished have much to do with its success. In the rapidly succeeding improvements in dental engines and chairs, his unflagging zeal was shown by a series of triumph which overcame all obstacles and produced results which commanded the admiration of all who appreciated their wonderful adaptation to the purposes which they were meant to serve. It seemed

to be his mission more than that of any other man to lead and educate the profession to an appreciation and employment of time and health-saving instrumentalities. He not only stood ready to meet its every demand, but seized upon and fostered every suggestion, resting only when the ideal became the actual. His ambition for progress and improvement led him to stimulate dental inventors, until the genius that conceived the thought rejoiced in its fruition. Thus it may be truly said that to a large extent he created the market which he supplied.

In the field of dental literature, the publication of the "Dental News Letter" for twelve years, commencing in 1847, and following it, of the "Dental Cosmos," now in its fiftieth (1908) volume has had no small share in the growth of the profession in usefulness, self-respect, and public regard.

It will scarcely be disputed by any one familiar with the history of dentistry of past years that in many directions no one man exercised a wider or more lasting influence upon its development, not alone in this country, but throughout the world, than Samuel S. White.

He took an active interest in all that concerned the dental profession; identified himself with it and gave to its advancement the best efforts of his life. Though already overburdened with business cares, he accepted the leadership of an opposition to exactions made by the Goodyear Dental Vulcanite Company, which he conscientiously believed were founded on an indefensible patent. His services and sacrifices in the position which was thus almost thrust upon him should be long and gratefully remembered by the profession in whose interest he acted, as, whether right or wrong, successful or otherwise, he was honest and earnest in his efforts in the legal contest of their claims, involving himself in personal suits for slander and "maintenance" with damages laid at \$175,000. Dr. White received the approval of the profession for his action in their behalf and received resolutions of thanks from the American Dental Association, the New York State Dental Society, Harris Dental Association, Merrimack Valley Dental Association, etc. The Philadelphia Dental College conferred the honorary degree of D. D. S. on him February 28, 1853. He was a member of the American Dental Convention and served on the Executive Committee at the 14th annual meeting, New York City, June 2-4, 1868.

His readiness to lend a helping hand to inventions and enterprises outside of his own business is worthy of notice. He early became interested in the Harmonic Telegraph, and assisted Elisha Gray, its inventor, with the means necessary for its development. He never wavered for a moment in his faith

in its ultimate success or hesitated to furnish the required means promptly as called for. He was also a large stockholder in the American Speaking Telephone Company—an outgrowth of the Harmonic Telegraph,—and gave much time and thought to prevent litigation about rival claims, and was largely instrumental in the adjustment and consolidation of opposing interests.

He was a patriotic and public-spirited man,—the first in America to respond to the call of the government for a loan in its early struggles with the rebellion. He was a humanitarian and a liberal helper in philanthropic efforts, disbursing continuously for many years with an unstinting hand in aid of charitable objects. He was a worker in the great Sanitary Fair, and one of those who subscribed five thousand dollars each towards the Centennial Exhibition. He was a member of the Union League, of the Reform Club, the Franklin Institute, the Academy of Natural Sciences, the American Association for the Advancement of Science, the United States Board of Trade, and many other business and benevolent associations.

He died at Paris, France, December 30, 1879, of congestion of the brain in the fifty-eighth year of his age.

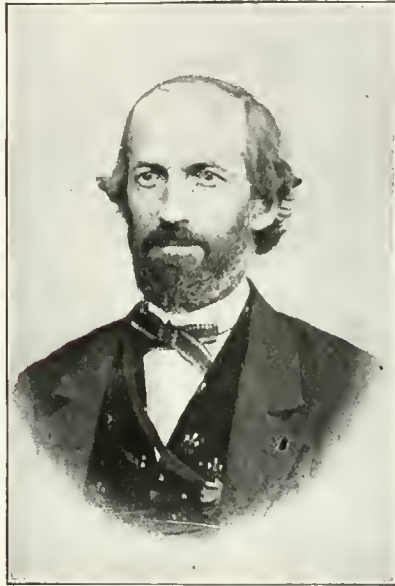
HENRY E. PEEBLES, D. D. S.

A MAN WHO TOOK THE INITIATIVE IN MISSOURI DENTISTRY.

From the dental standpoint Henry E. Peebles was the man of whom Hubbard would say "carried the message to Garcia" in Missouri dentistry. Through his tireless efforts the Missouri State Dental Association was organized, and from it emanated the organization of the Missouri Dental College and the "Missouri Dental Journal," the first dental school and journal permanently established west of the Mississippi river. Dr. Peebles was born on a farm in Rockingham Co., Virginia, February 10, 1812. In 1817 his parents removed with their family to Fairfield Co., Ohio. Here young Henry spent his boyhood and grew to manhood. At the age of 22 he attended college at Marietta, Ohio, and acquired a classical education; following this, he studied medicine with a Dr. Hyde, of Rushville, Ohio. Young Peebles proved an apt student and soon acquired a practice which extended over a broad scope of the country, his visits to his patients being made on horseback. During his medical practice he formed the acquaintance of an itinerant dentist, who encouraged him to adopt dentistry as his calling. Being a natural mechanic this work appealed to him, and he soon began practice at Rushville; while here he married Miss Elizabeth V. Linville, of Fairfield county. During their life ten children were born to them. Hearing flattering reports of the then "Far West," Dr. Peebles removed his family in 1842 to Lexington, Missouri, where he soon acquired a good reputation as a practitioner and as a citizen. He became a Mason and was prominently identified with the Methodist Church. He practiced successfully at Lexington for fourteen years, when in 1856 he removed to St. Louis where by his force of character and skilled ability he immediately commanded a large practice. He at once became a leader in the profession. His office at the southeast corner of Eighth and Locust streets became the headquarters and gathering place for the most prominent men in the profession in St. Louis or visiting dentists. Here the various phases of dentistry, both practical and educational, were discussed. It was here, at some of these gatherings probably, the idea of the society, the college and journal was conceived and Henry E. Peebles, of gentlemanly and

scholarly attainments, a man of great energy and force of character, with correct views on educational questions—a leader of men—was the Moses who led the profession from darkness to light in the particular section, and did much to bring about a higher grade of literary and scientific attainment for the profession.

Just after Dr. Peebles' removal to St. Louis the local profession organized



H. E. Peebles

the St. Louis Dental Society, December 16, 1856. Dr. Peebles' name appears as having signed the constitution and by-laws as a charter member. He was president of this society in 1866. Nine years after this society's birth, October 31, 1865, some sixty dentists met in St. Louis and organized the Missouri State Dental Association. To Henry E. Peebles belongs the honor of bringing about the organization and his name alone will live in dental history as the Association's father. He personally wrote the letters of invitation sent to every known reputable practitioner in the State that eventually brought

about the organization. On the second day of the meeting, evening session, the association adopted the following resolution, in appreciation of Dr. Peebles' services: "Resolved, that the thanks of this association are due and are hereby tendered to Dr. H. E. Peebles for his constant labors to effect a full organization of the dentists of Missouri into a State Association, he having commenced the labor in July, 1864, by extensive correspondence and consultation with the members of the profession."

This resolution was also ordered "written in a plain hand, signed by the president and secretary, neatly framed and presented to Dr. Peebles." Possibly there was some delicate and hidden "politics" played when Dr. Peebles was appointed by the temporary chairman, Dr. John S. Clark, as chairman of a committee to nominate permanent officers. As Dr. Peebles was the originator of the association and possessed all the needed qualifications of a president, he seemingly should have been the society's first president, but as he was selected chairman of the nominating committee, the committee could not becomingly nominate him, and Dr. Henry J. McKellops was nominated and elected the first president. However, at the second annual meeting, July 5, 1866, Dr. Peebles was elected to the presidency.

At this meeting a motion was made that "the officers of the association be considered as constituting a dental college committee, endowed with plenary powers and instructed to report at the next annual meeting." As president, Dr. Peebles was chairman of this committee and wielded a marked influence for good towards bringing about the organization of the Missouri Dental College, which was chartered September 16, 1866, beginning its first course of lectures on October 1, of the same year. Dr. Peebles was one of the incorporators of the school and its first treasurer as well as the first Professor of Surgical and Operative Dentistry.

At the third annual meeting of the Missouri State Dental Association a committee, consisting of Drs. Isaiah Forbes, H. J. McKellops and Edgar Park, was appointed to establish a dental journal. At the next (fourth) annual meeting this committee was changed to Drs. H. S. Chase, H. E. Peebles, H. J. McKellops and Homer Judd, who "were appointed to organize a joint stock company to start a dental journal, to be conducted and controlled by an association to be hereafter incorporated under the laws of the State of Missouri." As a result, the "Missouri Dental Journal" was organized in 1869. Prior to this date, in 1858, the "American Dental Review," the pioneer dental journal of St. Louis, had been established by Dr. A. M. Leslie, with Drs. H. E. Peebles, C. W. Spalding and Isaiah Forbes as editors. The "Jour-

nal" was short lived, however. Dr. Peebles was a delegate to the American Society of Dental Surgeons, also to its successor, the American Dental Convention, of which he was president, at the eleventh annual meeting, held at White Sulphur Springs, Va., August 1-3, 1865. He was also an active member of the Mississippi Valley Society of Dental Surgeons, contributing freely to it both in papers and in discussions. He was also an active member of the Western Dental Society, whose membership was made up of dentists of Illinois, Indiana, Iowa, Missouri. Of this society he was recording secretary for a number of years. Dr. Peebles was also a member of the Southern Dental Association and identified with all other professional interests that would better his profession in his day. He was a forceful speaker and greatly inspired his hearers at social functions, commencement exercises, etc., where he was in demand. His literary contributions found in the "Missouri Dental Journal" and the "Americal Dental Review" are few, yet those few are well written. In one of his papers he recommends the filling of root canals with plaster of paris.

Dr. C. P. Plattenburg, of Chicago, a student of Dr. Peebles, says: "Dr. Peebles was a born aristocrat, honorable in everything and would remind one of the old cavaliers. He was a most enthusiastic dental society worker and student of therapeutics, and as a speaker always made his presence felt wherever he was. He was a fastidious operator. He had as office partners Drs. Sylomans Dunham and Joseph Payne. Their office was on Fifth street, just north of Olive, and there was a coterie of men within a stone's throw which could not be duplicated. Among them was Dr. Blake, who would remind one in appearance of Thomas H. Benton. Round the corner, on Olive street, were Spalding, Morrison and Eames. We made the most of our instruments in the laboratory, and we could get up finely-made, well-tempered instruments with ivory handles and silver ferrules. Our favorite handle, however, was made of rings of leather hammered on a plugger or excavator, and trimmed and polished. I have since seen something similar on bicycle handles of late years. Of course, every dentist had to have a case of pearl handled, ruby set, impracticable instruments for show, and a set of Chevalier forceps. Our vulcanizers were made at the brass works. The first modern, up-to-date vulcanizer in our office was a 'Hayes,' and it was a nine-day wonder. While I studied with Drs. Peebles, Dunham and Payne, their office was on Fifth street, just north of Olive. Between 1861-5 the term of apprenticeship in those days was four years for all students. Dr. Peebles possessed the greatest skill, and did beautiful operations, although he worked under great

disadvantages with no rubber dam, no automatic mallet, and with pluggers made from awls by myself. His fillings were made mainly with Abbey's 'adhesion' foil."

In recognition of the high attainments of Dr. Peebles the Baltimore College of Dental Surgery conferred the honorary degree of D. D. S. upon him in 1850. The same year the Ohio College of Dental Surgery honored him with the same degree.

Dr. Peebles had several students who were a credit, both to him and the profession. Among them were Drs. C. B. Plattenburg, now practicing in Chicago; John R. Mathews, of Los Angeles, Cal., and J. B. Newby, of St. Louis.

Dr. Peebles died at his country home at Oakland, St. Louis Co., February 14, 1871, of erysipelas and typhoid fever, greatly mourned by his family and professional friends. He was survived by his wife and two daughters, one living in New York City and another, Mrs. A. M. Flourney, of Pasadena, California.

ASA HILL, D. D. S.

INVENTOR OF "HILL'S STOPPING," A MAN WHO DID MUCH TO MAKE THE PRESERVATION OF HUMAN TEETH POSSIBLE.

Asa Hill, the youngest of six children of Phineas and Mary (Stone) Hill, was born in Norwalk, Connecticut, November 20, 1815. His father was a stone-cutter by trade. His mother died when Asa was three years old, and he subsequently remarried and removed to Huntington, Long Island, where young Asa lived until he was fourteen years of age, when feeling that his father had his hands full to support his numerous family (having five children as the issue of his second marriage), he went to live with his eldest brother, then residing in Danbury, Connecticut.

The following winter he attended District School, and graduated, so far as attending school is concerned, in an "old red school-house" at the foot of Main Street. Henceforth his employment was to assist his brother William, a tailor, as an apprentice, and thus make compensation for his support. This he continued for five years. Prior to his advent in Danbury, while still living at home, he became a subject of deep religious sensibility, resulting in a thorough change of character. The religious element henceforth moulded his subsequent career.

The aspiration of his youth was to become more intelligent in order to be useful. His education was exceedingly limited, yet he possessed an irrepressible desire for useful knowledge. Books, especially the Bible, were his constant companions. He literally "burned the midnight oil" with an unconquerable thirst for knowledge; with no one to direct his studies, he groped about as best he could for such helps as were at hand. Books of divinity were eagerly seized and the contents appropriated. In this way he thoroughly mastered the Calvinistic and Armenian, the Aryan Socinian, and Universalist, as well as the sceptical and Deistic controversies of the times. Indeed, such was his proficiency in this respect, and such his evident devotion to theological literature, that the idea became prominent in the community that he was preparing for the ministry.

This, however, was not his purpose, although conscientiously endeavoring



W. Hill D.D.

to fit himself for usefulness in future life, with no very defined line of future action before him. About this time a few public-spirited gentlemen of Danbury organized a library, which became accessible to such as he. Of this he most gladly availed himself, and crowded his mind with its contents. Here he first became aroused to scientific and philosophical truths. His interest was awakened by the perusal of "Good's Book of Nature," and he grappled with its scientific nomenclature.

Necessary attention to business for a livelihood, constant activity in the church, and an earnest devotion to such books as were accessible, when time permitted—mostly evenings—characterized his experience and life in those days. About the age of twenty an event occurred which changed his course entirely, and opened for him a hitherto unthought-of career. A brother was sick of tuberculosis, and under treatment of Dr. Howell Rogers, of Colchester, Connecticut, then quite famous for his treatment of pulmonary diseases. News came of his severe illness, and as no other member of the family could go to him as well as he, it was decided that he should go.

His brother died soon after, but not until he had formed the very pleasant acquaintance of Dr. Rogers who proposed to him to study medicine with him. After returning home and consulting his brother he accepted this proposition and immediately set about its accomplishment. He pursued the elementary studies at home for a while, under the doctor's direction. This he did most assiduously. His anatomical text-book was his almost constant companion, and he worried through its technicalities as best he could.

About this time it became known among his friends that he was studying medicine, when a gentleman, then in the practice of dentistry in Danbury (Dr. David P. Knapp), suggested to him its study, and offered to take him in his office and instruct him in this specialty, suggesting that it might be a help to him in medical studies. Arrangements to this effect were consummated, and he soon entered Dr. Knapp's office. Here he continued for several months, getting what knowledge he could—acquiring the use of the tools, making and shaping his own instruments, under the tuition of his preceptor.

With the helps at hand, Dr. Hill plodded along, until he had acquired a superficial knowledge of dentistry, and with the aid of his preceptor made a case of instruments and returned to Colchester to prosecute his medical studies under the direct supervision of Dr. Rogers. He eked out a scanty support by means of the little dentistry he could do. And there were times when his money was all gone and he knew not where the means to pay for his next meal was to come from.

After spending some months in Colchester, prosecuting his studies, he returned to Danbury, continuing his studies as before. He was in debt for clothes, books, etc., and managed as poor boys must always do. Some good friends on learning that he was studying medicine seemed really grieved. One in particular, Rev. Anson Rood, then pastor of the Congregational Church at Danbury, went to him and remonstrated with him for not giving himself up to the ministry. But to his mind, Providence was leading in this direction, and so he followed on, making incursions to Ridgefield and some other neighboring towns, doing a little here and there in the way of dentistry, as opportunity offered, still remaining under the tuition of his dental preceptor, Dr. Knapp.

Meantime he determined to prosecute the study of medicine, that it might make him more successful in his chosen specialty. Soon after this some friends suggested that Norwalk would afford a dental practice, and without any design of remaining there more than a few weeks, he went and continued there until his death.

After he began to feel established in Norwalk, his old preceptor, on account of ill health, invited him to return to Danbury, and take his practice and be his successor. But, having become interested in Norwalk, he did not wish to leave. So he purchased his friend's instruments and such other things as he most needed.

About this time a movement was made to organize an association that should bring together the scattered members of an inchoate profession, and lift the art into a science, or at least an honorable profession. A meeting was held for this purpose in New York, August 18, 1840, which brought together the most distinguished lights—Roper, Gardette, and Townsend, of Philadelphia; Hayden and Harris, of Baltimore; Parmly, Baker, Lovejoy, Foster, and Trenor, of New York; Keep, Tucker, and Harwood, of Boston, with other good men of the profession; and there was organized the "American Society of Dental Surgeons," under whose powerful auspices the dental profession in this country bounded forward and upward with astonishing rapidity. Soon after this the first monthly periodical was published,—viz., the "American Journal and Library of Dental Science." Next was organized the first dental school, located at Baltimore, and later the publication of various dental textbooks and numerous dental serials.

The third annual meeting of the American Society of Dental Surgeons was held in Boston. Thither Dr. Hill turned his timid footsteps, and after due application and examination was admitted to membership, and received

the diploma of the society.¹ In 1846 the "New York Dental Recorder," a monthly, was edited and published by Dr. Charles C. Allen, of New York City.

Upon his invitation, Dr. Hill became associate editor with him. This continued during 1851-53, when Dr. Allen's health failed, and the journal came wholly into the hands of Dr. Hill, and for a short time was both edited and published by him. But the labor was too great, and it was subsequently edited by C. A. Ballard.

Shortly after the organization of the American Society of Dental Surgeons the controversy regarding amalgam, generally known as the "amalgam war," was sharp and severe among the members, and was, in fact, the occasion of its dissolution; the majority contending that to use it at all was highly injurious and unprofessional. This, however, brought the matter of plastic fillings under consideration, and to find such a substance as would answer the purpose was regarded as a great desideratum in dentistry.

The French Academy had offered a large prize for such a discovery. But it was an exceedingly difficult thing to find. It should possess the following essentials: First, it must be harmless in the mouth; second, it must be insoluble by the fluids of the mouth; third, it must be plastic when applied; fourth, it must speedily harden after its application; fifth, it must not shrink in the cavity of a tooth; sixth, it must needs imitate the tooth in color; seventh, it must be easy of application.

Considering the circumstances and the condition of dentistry at this time, the difficulties of securing such a filling were formidable, indeed, and led to much experiment. For this purpose Dr. Hill commenced a series of experiments, extending through years of labor and trial. It was his study by day and the subject of his dreams by night. For this purpose he availed himself of all possible sources of information, and his experiments embraced animal, mineral, and earthy substances.

He made mixtures and compounds, tried gums, chemical oxids, and metals, with expectations greatly elated and then blasted; he still persisted. At last he thought he had hit the right thing and brought out in 1847 what has since been known in the profession as "Hill's Stopping." This was comparatively crude at first, but soon won a name and character which has given it a standard place in the profession. The preparation consisted principally of bleached gutta-percha, carbonate of lime, and quartz. The following formula

¹ July 19, 1842. See "American Journal of Dental Science," Vol. III, September, 1842, p. 70.

is given for its preparation: "Mix pure gutta-percha, while in a softened condition, with 1 part of quartz, 1 part of feldspar, 2 parts of quicklime."

While it did not possess the requisite hardness for a permanent filling, especially in the surface of a tooth exposed to friction in mastication, the secretions of the mouth did not produce any effect upon it.

It could be used in cavities such as buccal or labial to advantage. In extremely sensitive teeth subject to thermal changes, it was a valuable stopping agent. However, its chief purpose for good was as a temporary filling.

It was introduced in 1848 under the protection of a patent.¹ This feature aroused much hostility among members of the profession, and was violently opposed by some of the ablest pens accustomed to write for our journals. But Dr. Hill believed it essentially right and just, and took up his pen in its defence, and had the satisfaction to believe that he was enabled fairly to meet and refute the objections brought against the right and propriety of dental patents. He lived to see a general concurrence in this sentiment, and "Hill's Stopping," indispensable to the successful practice of dentistry in his day, and used throughout the civilized world.

Efforts were put forth to imitate the genuine article, and much that was spurious was bought and sold in the market.¹ Having improved and changed the formula, it is now kept as a trade secret and manufactured by the S. S. White Dental Manufacturing Company; it still has a place among the plastic filling materials.

Dr. Hill's professional and literary efforts were continued until failing health compelled him to desist. Various contributions to the journals were made by him, and solicitations more than he could respond to, were brought to him.

In connection with Dr. W. W. Allport, of Chicago, and Dr. James Richardson, of Terre Haute, Indiana, he became associate editor of the "People's

¹ E. Blake, M. D., in "Dental News Letter," April, 1848, page 25, in a short article on gutta-percha recommends it for taking impressions, bands, ligatures, and springs for regulating, setting pivot teeth, temporary stopping, and handles for small instruments.

On page 30 same number, a circular to the Members of the Dental Profession, signed by Hill and Blackburn, dated Norwalk, Conn., April 16, 1848, in which they defend patenting the compound, and offer it to the profession, fifteen dollars for enough for one hundred large size fillings with full direction for its use. Subsequent orders will be filled at the rate of enough for one hundred fillings for ten dollars.

Page 46, same journal, July, 1848, is an announcement that the price has been reduced, it is to be sold for ten dollars a package (instead of fifteen for the first).

The price was subsequently reduced to five dollars per ounce, at which it remained a long time.

Dental Journal" in 1863, a popular quarterly for the diffusion of general information upon the subject of the teeth, and their relation to the general system. This was successfully published for two years and subsequently relinquished.

A fondness for experiment led Dr. Hill into many by-paths, developing new processes and new fields of research. Indeed, this was his recreation. When wearied with the routine of duty he sought rest in these experiments. He perfected a marble-staining process done with chemicals that penetrated the marble, remaining even after being highly polished. It was just beginning to attract public attention at the time of his death, and no doubt if he had lived would have proved a success. Landscapes, portraits, or lettering could be done in any color desired. His marble experiments were most fascinating, but not financially successful. His mind was constantly active. As early as 1851 Dr. Hill suggested galvanic anaesthesia in dental and surgical operations; but its first practical application was by Charles A. Kingsbury and J. B. Francis, both of Philadelphia, but the method has eventually proven uncertain and unreliable.

He was impressed when a mere boy with a remark made by Dr. Adam Clarke, that the old adage, "Too many irons in the fire," conveyed an abominable lie. Thus, when weary with one class of mental pursuits he would take up another, and by this means keep his mind constantly fresh.

The origin of all these experiments was a desire to perfect plastic filling for decayed teeth. For this purpose he laid everything under contribution

EXTRACT FROM U. S. PATENT OFFICE REPORT FOR 1849.

Patent No. 6110, Class XX, dated February 13, 1849.

Composition for Filling Teeth.

No. 6110. Improvement in Composition for Filling Teeth.

We do not claim as our own invention and discovery, the application of gutta-percha alone to the stopping and filling of carious teeth, although we are not aware that it was ever so used until we commenced using it; but what we do claim, is the combination of gutta-percha as a base with such other mineral, earthy, and metallic substances as will make such a compound, of such a character, and adapted to such a purpose as we have described, viz: its combination with such other substances as will shorten it and render it less tenacious, harden it and render it fit for a useful filling, and give it the desired color without any noxious quality, and without destroying its plasticity when heated, and the application of the compound substance for that purpose.

ASA HILL,

SAMUEL G. BLACKBURN.

NORWALK, CONN.

that could suggest a chance of success. And for more than twenty-five years his mind was awake to secure a hint from any available source. For this purpose he perused scientific journals for years, looking in every number for something that would be valuable in this respect. After the great "vulcanite dental base" controversy, he began assiduously working for something that should take the place of rubber for this purpose, but without success.

Dr. Hill was elected the first president of the Connecticut State Dental Association, which was organized in 1864. In 1866 Dr. Hill sent a petition to the president and faculty of Yale University, asking for the establishment of a dental department in connection with the medical department. This request was refused. In 1847 he received the honorary degree of "Doctor of Dental Surgery" from the Baltimore College of Dental Surgery.

Dr. Hill was the subject of deep religious convictions from boyhood, and often troubled with the thought that his duty in life was to preach the gospel. The result was he was licensed as a local preacher in the Methodist Episcopal Church, and endeavored to meet the demands of such a responsibility. April 20, 1858, he was ordained deacon, and in four years thereafter was promoted to elder's orders, according to usage, in the Methodist Episcopal Church.

Soon after he was compelled, by reason of ill health, to desist from public speaking, except in a very limited degree. In 1847 he was elected and served as representative from Norwalk to the General Assembly of the State. Likewise in 1856.

Dr. Hill for many years took a deep interest in the temperance cause, and made many public speeches upon the subject; he was active in the order of Sons of Temperance, presiding officer of the Grand Division of the State, and representative to the National Division, and a member of the Masonic and Odd Fellows orders. While engaged in the erection of a church edifice in Norwalk which stands to-day as a monument of his energy, he organized a society of the Second Methodist Episcopal Church, and served them as pastor for three years, while continuing the practice of dentistry.

He uniformly declined receiving compensation for any such service while he continued the practice of his profession. Dr. Hill was married April, 1842, to Miss Susan Isaacs, of Norwalk. Their only child, Rebecca (now Mrs. Ira Cole), at this writing lives at Norwalk, Conn.

Dr. Hill died suddenly of heart disease November 26, 1874, and was buried in East Norwalk Cemetery.

Dr. Hill was a type of the highest order of self-made men, at all times the staunch friend of those who in any sphere were striving for a higher good,

and his generous nature and warm sympathies carried his benevolence into many a household, causing his name to be revered as a public benefactor. He despised all "shams," and whenever he was enlisted in anything gave it the best gifts of his earnest nature. His wonderful eloquence and skill in impromptu speaking were frequently called into exercise, his audiences were impressed with his beautiful language which portrayed still more beautiful thoughts.

With pen, as with tongue, he was wonderfully gifted, and with his intense enjoyment and love of music he could and did produce some poetry that is interesting reading. Among his poems of merit are those entitled "The Drunkard," "My Mother," "We may not go back," and "The Invalid." These were published in the Norwalk "Gazette" and in the New York newspapers. The following shows the style and technique of his ability:

“THANKSGIVING IN CONNECTICUT.

“Once more they meet,
 The sire and son, the matron and the maid,
 The laughing infant, and the blooming youth.
 They are just stepping off, from time's last verge,
 The other trembling into early life,
 Scarce conscious of its own delightful being.
 And here they meet (as two extremes may meet),
 Bound to each other by a silver cord,
 Running through youth and manhood each a link,
 From helpless infancy, to hoary hairs.
 I see them seated round the festal board,
 The eldest first, then in order ranged,
 Three generations represented there,—
 Beauty without a blot, unmarred, unstained.
 And bright-eyed youth, with brow supremely fair,
 Manhood's true dignity with form unbent,
 And venerable age, that stoops beneath
 The pressing burden of its four-score years.
 Now all is still—anon the silence breaks—
 A prayer is offer'd, and most fervent praise.
 The prayer is brief—the solemn thanks are o'er,
 And merry voices mingle round the board.
 To eat, and what to eat, is the query now,
 The groaning board so laden with rich fruit,
 So many sumptuous dishes tempt the taste—
 Such viands, and such desserts rare,
 Nor strictest epicure could ask for more.

At length a pause—Whist! Whist! one father speaks.
 The tale—the tale, now echoes round the room,
 Each youth, with folded hands and eyes upturned,
 Awaits the tale, and all is still again.
 Thus silenced, he of hoary-hairs begins
 His tale—he tells of blood, and war and strife,
 Speaks of the Pilgrim Fathers, landing on
 The Rock of Plymouth, while the savage yell
 Rings with loud roar of December's winds—
 Of strange adventure and vicissitude,
 Of wasting sickness, and pinching cold,
 Diminished numbers, and of new recruits.
 The untamed Indian was their neighbor then,
 The land a wilderness, and climate hard.
 At length, the haughty savage is subdued,
 The sturdy arm of the Pilgrim clears the ground.
 The neat New England villages spring up,
 And peace and plenty crown the laborer's toil,
 Then comes Great Britain with her tyrant heel,
 To crush the germ of liberty, that thrives
 With rank luxuriance, on New England soil.
 And now, with ardor kindling in his eye,
 The old man glows, with patriot's pride
 He grasps his crutch, and fights his battles o'er.
 His eyes with sparkling energy bespeak
 The pent up feelings of his brave old heart,
 As he speaks of Lexington where fell
 The first rich blood that irrigates our soil,—
 And Bunker Hill, where noble Warren fell,
 With his compatriots in that bloody strife.
 The old man stops—his bursting heart is full,
 And he, strange chronicler of olden time,
 Can speak—no more."

As a Christian, scholar, writer, speaker, and inventor his memory will be revered by all who knew him and his name remembered with the list of those who contributed to early dentistry.

The principal facts contained in this sketch were obtained from Dr. Hill's daughter, Mrs. Ira Cole, Norwalk, Conn., "The History of Fairfield County, Connecticut," compiled by J. Hamilton Hurd, and from a biographical sketch by Dr. John McCalla in the "Pennsylvania Journal of Dental Science," Vol. I, page 395, October, 1874.

WILLIAM HENRY DWINELLE, M. D., D. D. S., A. M.

A VERSATILE GENIUS AND "ONE OF THAT COTERIE OF MEN WHO MADE DENTISTRY."

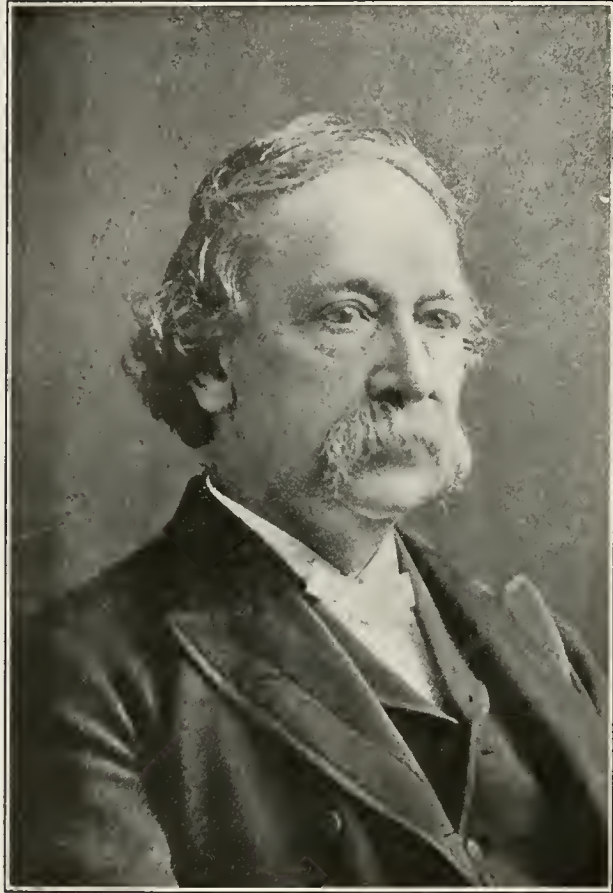
Probably no other man in early dentistry was more versatile and occupied so unique a position as did the subject of this sketch. He was a man of extraordinary attainments and originality, and reflected credit upon our profession at a time when the best influences were needed.

A lover of art and nature in all its forms, an enthusiastic literateur and clever writer, an easy conversationalist and brilliant after-dinner speaker, as well as a skilled operator, he was a power and one of the most renowned and influential dental surgeons of his time.

William Henry Dwinelle was born in Cazenovia, Madison County, New York, July 22, 1819. He was the second of seven sons of Judge Justin and Louisa Whipple Dwinelle, both of old New England stock, and of French and English ancestry.

William H. Dwinelle's early boyhood was spent in his native village attending the public schools, and later he became a student in the Oneida Conference Seminary, in Cazenovia. Having an early fondness for surgery, dentistry attracted his attention, and seeing in the specialty a wide field for the exercise of his peculiar genius he entered upon what proved his life work with boundless enthusiasm at the age of nineteen, as a student with Dr. Douglass, of Albany, New York, a gentleman who was then considered a competent dentist and a skilled workman. Prior to the time he entered Dr. Douglass's office as a student, he spent considerable time reading medical and scientific works in the office of a physician, Dr. Warner, of Cazenovia, who was considered a very intelligent man, well versed on scientific subjects which he discussed with young Dwinelle, who at an early age proved an apt scholar.

In 1838 he took up the practice of dentistry in his native village. Young Dwinelle showed marked mechanical ingenuity and instruments he needed that were not on the market he made for himself—many patterns he devised came into general use. Throughout his career he gave his inventions freely to the profession, and never patented any, saying he "considered it illiberal



William A. Dwyer

and degrading to make a traffic of that which should be free to all." He lived to see the day when he was called on to pay royalty on devices which he himself originated and that others had patented. Accounts of his inventions and discoveries appeared frequently in the various dental and scientific journals, illustrated by wood-cuts made by himself.

He had a delicate esthetic sense, and possessed talent as an engraver, designer, draftsman, and sculptor, all of which aided him in the specialty in which he was a recognized authority on both sides of the Atlantic.

At the completion of his course of study with Dr. Douglass, he returned to Cazenovia, where he practiced with success, and immediately began attending the meetings of the American Society of Dental Surgeons, where he formed the acquaintance of his contemporary, Chapin A. Harris, of Baltimore, Md., who, appreciating his talent, requested him to become Associate Editor of the "American Journal of Dental Science." This he did, and served in this capacity from 1847 to 1849, editing the eighth, ninth, and tenth volumes in conjunction with Amos Westcott. In 1850 he withdrew to be succeeded by Edward Maynard.

He became an enthusiastic society worker, and was in demand as a lecturer and demonstrator. Possessing a commanding figure and personal charms, his mind well stored with choice selections from the best literature, his tenacious memory enabled him to bring treasures from this storehouse to brilliantly illuminate either conversation, or the addresses he was frequently called upon to deliver at dental society meetings and graduating exercises.

About 1850, Dr. Dwinelle's papers on the use, workings, and value of the microscope to clinical medicine and dentistry began to appear. In an early monograph, the late Dr. Marion Sims, who was his intimate friend, states that "it was his friend Dwinelle's enthusiasm which first lead him to become acquainted with the wonders and revelations of the microscope." The microscope was Dwinelle's pet hobby; his interest in it was his chief consolation in his later years.

He was a fluent writer and contributed many valuable papers to the journals and to society proceedings. His series of articles upon the use of A. J. Watt's Crystal Gold, published in the "American Journal of Dental Science" about 1854-55, were specially valuable. They undoubtedly led to an appreciation of the cohesive properties of gold, and to the use that has since been made of it in contouring gold fillings, and incidentally to improve methods of inserting crowns. Until the advent of crystal gold, cohesion was not considered in manipulating gold foil in filling teeth. Dr. Dwinelle's success in

building out and restoring the shape and usefulness of badly broken down teeth with crystal gold led to the same being done with foil, and was the beginning of that which has done so much to advance the manipulative branch of operative dentistry. Some other of his contributions were on Deep-seated Dental Caries, Preparation of Cavities, Vacuum Chambers, Mounting Cheoplastic, Cocaine, Fillings, Toothache, etc.

By his skill, he commanded the confidence of physicians and surgeons, and helped in an unusual degree to secure recognition for our specialty. He stood for many years as a bond between the parent profession and its young offspring. He performed operations on the jaw for removal and resection similar to those that are to-day the pride and glory of modern surgery.

Accounts of these appeared in various scientific journals, illustrated by wood-cuts, the work of his own hands. His professional work was eminently artistic and finished, and for originality he was in the class with Bonwill.

He introduced a number of useful inventions and methods that were innovations, among them the banded post-crown, described by him in the "American Journal of Dental Science," Vol. V, page 278, April, 1855, and a system of bridging teeth.

In 1850 he originated the use of and gave to the profession transfer carbon paper used for articulating dentures, crowns and fillings,—this idea was later patented in England, "as a highly improved articulating paper."

In recognition of his high professional attainments in 1847, the Baltimore College of Dental Surgery conferred upon him the honorary degree of Doctor of Dental Surgery. In 1849 the Washington Medical University of Baltimore, Md., conferred upon him the honorary degree of Doctor of Medicine. In 1877 the Hamilton College conferred upon him the honorary degree of Master of Arts.

In 1850, feeling that the sphere in which he moved was too restricted, he removed to New York City, where he at once took a high position, and for many years enjoyed a lucrative practice, few men commanding higher fees than he received, his income one year amounting to \$32,000. He was highly ethical and maintained a reputation for professional integrity that made a deep impression upon the younger men of the profession. In 1866 the New York College of Dentistry was organized in New York City and began its first session November, 1866, with Dr. Norman W. Kingsley as Dean and Dr. Dwinelle as Professor of Operative Dentistry. He was a popular lecturer and demonstrator, and to struggling dental students, artists, and writers he gave kind encouragement and financial aid, as well as to institutions of art and

learning. Being an omnivorous reader and an amateur in fine arts, books and pictures were his chief delight. He gathered a fine library and art collection, which he left at his death to his sister.

He was always ready to recognize merit in others, and made an able defence of Dr. Morton's claim to priority in the discovery of ether as a general anaesthetic in surgery; this was published in 1849 at a time the medical profession was divided in opinion, much in doubt, and bitter in discussion. It was entitled, "The Casket and the Ribbon, or the Honors of Ether." Reprints of this defence of Dr. Morton were circulated throughout the United States and in Europe and brought him into prominence.

Dr. Dwinelle was a man of remarkable personality, of a warm heart and generous impulses; his office was always open to his confreres, to whom he willingly demonstrated his many methods.

He was an enthusiastic advocate of dental societies and often aided in their organization and material prosperity. He was an early member of the American Society of Dental Surgeons, one of the organizers of the American Dental Convention, the New York Odontological Society, of which he was president in 1891; the First District Dental Society of New York, the American Dental Association, the American Academy of Dental Science, and the New York County Medical Society.

For over thirty-five years he was a prominent and public-spirited citizen of New York City, and became connected with organizations that are now permanent sources of power and progress, such as the New York Historical Society, the National Academy of Design, the St. Nicholas Society, the Union League Club, the New England Society, Alumni Society of Hamilton College, and the Holland Masonic Lodge.

In 1851-52 he made a trip to Europe, where his fame had preceded him, and where he was entertained by the leading men of his profession. He visited the World's Fair at London, and wrote numerous entertaining letters for publication concerning European dentistry and medicine.

March 24, 1888, on the anniversary of his fiftieth year of practice, the profession of New York tendered him a banquet, which was attended by the leading spirits of the profession, and which was a memorable affair. June, 1892, broken in health and crushed by circumstances of hazardous speculation that financially wrecked him, he retired to the home of his childhood at Cazenovia, built by his grandfather, Jeremiah Whipple, in 1806, in which his father and mother were married in 1813, and in which he was born and where he passed quietly the twilight of his declining days.

His personal friends in the American Dental Association, learning of his condition, hastened with generous impulse to make his last days comfortable by a substantial financial contribution, which was continued yearly until his death.

Dr. Dwinelle died February 13, 1896, of nervous prostration, brought on by overwork, at the age of seventy-five years, after an illness of nearly four years, and was buried in the family plot in Evergreen Cemetery, Cazenovia.

By force of genius and prodigious industry he amassed a large fortune; this disappeared, but he left a rich heritage to the profession that he improved and honored and did much to elevate to a high art and science.

He was a man of many gifts and would have adorned any calling. The late W. W. Story used to say of him, that "a great sculptor had been lost through his choice of a profession." Before the bar he would have been a great advocate; in the medical profession he would have been a great physician or surgeon. He chose to be a great dentist.

The facts contained in this sketch were obtained from Miss Louise S. Dwinelle, sister of the subject of this sketch, and from the "Dental Review," March 15, 1896; the "Dental Cosmos," April, 1896; and the "International Dental Journal," April 1, 1896.

CHARLES ANDREW KINGSBURY, M. D., D. D. S.

ONE OF THE FIRST TO APPLY ELECTRICITY AS AN ANAESTHETIC AGENT IN DENTAL SURGERY.

The profession is indebted to the State of Connecticut for the genius of a number of her sons who have loaned their dignity and talent to the cause of developing dental surgery in America. Among the most prominent were Horace H. Hayden, Solyman Brown, Horace Wells, Asa Hill, John M. Riggs, and lastly the subject of this sketch, whose brilliant and scholarly attainments as educator and practitioner will long be remembered.

Charles Andrew Kingsbury, the son of Amariah and Emily Buckland Kingsbury, was born at East Windsor, Conn., July 26, 1819. His parents' ancestors were among the early settlers of New England. His father was a lineal descendant of Henry Kingsbury, who came to this country from Groton, England, in 1630.

"Winthrop's Journal," first edition, page 369, says: "Henry Kingsbury came to America on the 'Talbot,' one of the vessels that brought Governor Winthrop's company to this country." Henry Kingsbury settled at Ipswich, Mass., and his posterity settled in different parts of New England. Some were engaged in their country's defence in the Revolutionary, French, and early Indian wars, while others occupied high positions of trust and honor in New England.

On the maternal side Dr. Kingsbury descended from the Bucklands of England, some of whom were distinguished as men of letters and science in their country. His mother was the eldest daughter of Captain Erastus Buckland, of East Windsor. She was a woman of sterling qualities, who was bereft of her husband during the infancy of her son Charles. On her solely depended his care and education, which she accomplished by teaching in private and district schools, in which Charles was her pupil.

When he reached the age of eight years she was married the second time and removed to Maidstone, N. H. Here young Charles resided with his stepfather and attended school from six to eight months each year, and also worked on the farm until he reached his sixteenth year.



C. H. Kingsbury

On the banks of the beautiful Connecticut River, and among the grandeur of the mountain scenery of Vermont and New Hampshire, he developed mind and body and also developed a reverence for the sublime and beautiful in nature, a characteristic predominant through his entire life.

Possessing a restless and adventurous spirit, besides being especially fond of books and ambitious for higher attainments in life, he determined to devote himself to study and teaching that he might acquire a liberal education. This he did by his own exertion, commencing to teach in the public schools at the age of sixteen, alternately attending the Wesleyan Academy at Wilbraham, Mass., and Newbury Seminary, Vermont. This he continued to do for two years. During the winter of 1837-38 he taught a large school in his native town in the district where he had attended school when a little boy.

In the spring of 1838, in company with a fellow-student and teacher, he visited Trenton, N. J., for the purpose of teaching another year before entering college. Among the first acquaintances he formed in Trenton was that of Dr. Nathaniel Bunn, one of three practicing dentists at that period at Trenton.

From the association with and friendship of Dr. Bunn young Kingsbury was induced to study dental surgery. Other circumstances, however, besides the influence of his preceptor led him to enter his new calling with enthusiasm. He was connected by family relationship with two members of the profession who had already acquired a prominent position in dentistry, both commanding the confidence of the dental and medical professions, namely, Dr. Horace H. Hayden, a native also of Winsor, who at the time was in the zenith of his successful career, and the other, his cousin, Dr. Horace Wells, who first made practical use of the anaesthetic properties of nitrous oxid gas, and who at this period enjoyed an excellent reputation as a dental practitioner at Hartford, Conn.

The success these two men had attained led him to look upon the dental profession with favor; therefore he entered his name, paid his fee of one hundred dollars, and became the student of Dr. Bunn, with the understanding that the duties of his school should not be encroached upon during the first year.

His spare moments were devoted to the study of the limited text-books then in use, including S. S. Fitch's "System of Dental Surgery," Thomas Bell's "Anatomy, Physiology, and Disease of the Teeth," and James Snell's "Practical Guide to Operations on the Teeth." These books constituted his reference library and contained about all then accessible to the dental student.

After studiously mastering the contents of these books, he spent as much time as possible in his preceptor's office, providing himself with the most approved instruments of the time, some of which he made with his own hands, and speedily acquiring skill, his patients multiplied until he soon commanded an excellent practice.

Following the teaching of Snell, he soon discarded the key for extraction and procured a set of the best English forceps of Mr. Snell's patterns.

During the first year of his dental experience he conceived the idea of applying electricity as a therapeutic agent to relieve aching teeth. Constructing the electrical apparatus with his own hands, he would charge a Leyden jar with the fluid and pass the current directly through the aching tooth, giving a shock that in many cases allayed the pain.

Probably he was the first to apply this subtle agent to mitigate dental pain. He was led to his electrical experiment through his fondness for natural philosophy, in which he took special interest. Not being satisfied with his knowledge of dentistry, in the spring of 1839 he found it necessary to relinquish his engagements as a teacher and to further equip himself for successful practice.

For this purpose he visited Philadelphia and applied to several prominent dentists for practical instruction in gold work and the construction of artificial dentures. This he soon found was most difficult to secure, owing to the narrowness and selfishness of the men who followed the calling of dentistry, which was nearing the embryonic period of professionalism at the period just prior to the establishment of the first college, journal, and society.

These men offered him nothing but discouragement. After repeated efforts and failure to accomplish his desire, he finally succeeded in obtaining instruction under Mr. Charles Houpt, a skilled dental mechanic of Philadelphia, who had a large practice in prosthesis, especially excelling in the insertion of metal base artificial dentures.

After receiving such instruction as Mr. Houpt could impart, and feeling much better equipped for his professional duties, he practiced in some of the larger towns in New Jersey as an itinerant. Meeting with encouragement and receiving the friendly confidence of the medical profession, he continued practice until the fall of 1839, when, still spurred with an ambition to acquire a classical education, he spent the winter at Lancaster, N. H., devoting himself to the study of the languages and natural sciences under the tuition of a private tutor. The year 1840 he also devoted to classical studies under the tuition of Mr. John H. Wakefield, a ripe scholar and teacher of Boston.

In the spring of 1841 he opened an office and successfully practiced in Bordentown, N. J., until the ensuing fall, when he removed to Philadelphia and assumed the practice of Dr. A. Evans, a dentist of reputation, who had offices on Ninth Street, above Arch, until his death. Here Dr. Kingsbury soon secured a liberal patronage.

Finding it difficult to obtain from Samuel S. Stockton (at that time the only extensive manufacturer of porcelain teeth in the world) the various shades and forms suited to special cases, he resolved to make himself thoroughly acquainted with the ceramic art. For this purpose he placed himself under the instruction of Dr. Elisha Neall, Sr., who enjoyed the reputation at that time of being one of the most expert carvers of block teeth. Here he gained the desired proficiency in carving and making teeth and dentures, and also obtained an insight to true professionalism from Dr. Neall, who was one of the sturdy landmarks of early dentistry.

As a boy young Kingsbury was of a very religious tendency, and was educated with the idea of some day entering the ministry.

While attending the Newbury Seminary, at the age of seventeen, he received a commission as a local preacher, and occasionally officiated in public as such.

Frequently urged by his friends to give up dentistry and enter the ministry of the Methodist Episcopal Church, he finally after many mental conflicts was led to believe Providence decreed he should forsake secular pursuits and sacrifice worldly ambitions.

This he did and united with the New Jersey Annual Conference, and was assigned to preach at Haddonfield, N. J. Relinquishing his profession, he entered the ministry with characteristic enthusiasm, and met with welcome and encouragement in his new field of labor. After a year's service he suffered from an attack of malarial fever, which completely shattered his physical system; he also had a severe case of laryngitis, which impaired his vocal cords to the extent that he could no longer continue successfully in the pulpit. He again took up the practice of dentistry, remaining in Haddonfield three years, when he removed to Mount Holly, N. J., where his impaired health gradually improved. Here he studied medicine with Dr. B. H. Stratton, in the meanwhile attending lectures and graduating from the Philadelphia College of Medicine July 19, 1850, with the idea of fitting himself more fully for the duties of his specialty rather than for the practice of medicine. While residing at Mount Holly he also placed himself under the instruction of Dr. John Allen, of New York, the perfecter of continuous gum work, and more fully mastered and added to his knowledge of dental prosthesis.

During the last three of the thirteen years of his residence at Mount Holly he had an office in Burlington, N. J., dividing his time equally between the two places.

Desiring a larger field of labor, in 1857 he removed to Philadelphia, where he again soon acquired a large practice, which continued until his death. He was an excellent operator, and especially excelled in hand-pressure gold work, a method of filling to which his powerful physique was admirably adapted, and which he largely employed throughout his professional career.

Dr. Kingsbury was a strong advocate of a higher standing of qualification for the dental practitioner, and felt the necessity of a thorough and systematic course of dental instruction for the embryonic dentist. With this idea in view he took an active part as one of the founders of the Philadelphia Dental College, which was established in 1863 by Drs. J. H. McQuillen, Thomas Wardell, J. Foster Flagg, Henry Morton, and himself. He spent much time and considerable of his means in founding this institution.

At the time of organization he was elected to the chair of Dental Physiology and Operative Dentistry, which he held for several years. In 1869 the arduous duties of an increasing practice led him to resign the position. He was then elected Emeritus Professor of the same branches. This chair he held until his death. He was one of the first clinical staff appointed. In dental society work Dr. Kingsbury was very active. He participated in the organization of the American Dental Association, the Odontological Society of Philadelphia, the Odontographic Society of Pennsylvania, of which he was the second President, and the State Dental Society of Pennsylvania, the Pennsylvania Association of Dental Surgeons, which he joined in 1859; the Academy of Natural Sciences of Philadelphia, the Philadelphia Dental Club, the Philadelphia County Dental Society, and the American Academy of Dental Science, of Boston.

In his professional work he stood in the front rank, and had associated with him the most prominent men in the profession with Townsend, Harris, Arthur, and other leaders. He advanced with the profession's growth, and while conservative was ever ready to adopt new methods which promised to be useful.

He took part, as a guest, at the Patriarchs' dinner in New York, January 31, 1891, tendered by the profession to its fathers who had been in practice fifty years. Dr. Kingsbury, in an address full of interest, graphically reviewed his early professional life, and in kindly, encouraging words, urged his younger hearers to make the most of the opportunities the profession's advance had provided.

In the spring of 1867, in company with a number of ministers and professional friends, he took a trip abroad, spending the greater part of the year in traveling through Egypt, Palestine, Syria, Turkey, Greece, Sicily, Italy, Switzerland, Holland, Belgium, France, Prussia, Germany, and the British Isles. He examined into the history, antiquities, arts, sciences, and also the status of the dental profession in these countries, making notes of his observations, which were published in the newspapers of Philadelphia. He also contributed a series entitled "Professional Etchings" to the "Dental Cosmos" (Vol. X., pages 14 and 345, January and July, 1868), which were read with interest by the profession. He called on numerous members of the profession in the various cities he visited, and was received by them with marked attention. When in Paris he was entertained and introduced to the leading men of France by the late Dr. Thomas W. Evans. While in the city of Damascus he made the acquaintance of Algarine Emir, Abd-el-Kader, who desired him to operate upon his teeth; owing to the fact that he did not have his operating instruments with him he was unable to comply.

The constant claims of his college work and large practice prevented Dr. Kingsbury from writing on professional subjects as much as he desired; however, what he wrote was well written. The following are a part of his contributions to dental periodical literature, all of which were published in various dental journals between 1859 and 1872:

"Cause and Treatment of Irregularity of the Teeth," "Discoloration of Dentin," "The Examination, Preparation, and Filling of Proximal Cavities," "The Uses of Arsenous Acid in Dentistry," "Essay on Immobility of the Inferior Maxilla," "Pathology of Dental Caries," "Anæsthesia," "Hydrostatic Blow-Pipes," "The Advantages and Disadvantages of treating and filling Exposed Pulp Cavities," "Professional Etchings," "On the Prophylactic Treatment of Caries of the Teeth and Abrasion and Erosion," "Remarks on Specimens of Exostosed Teeth and the Difficulty attending their Extraction in Certain Cases," "Treatment for Pulp Filling," "Essay on Arsenous Acid as a Remedy for Sensitive Dentin," besides numerous valedictory and introductory lectures at the Philadelphia Dental College.

Dr. Kingsbury was married to Miss Hannah Sinclair Bills, of Allentown, N. J., January 31, 1841. To them were born six children,—namely, Daniel and Mary, both of whom died in infancy; Emily B., who married Harvey Rowland, Jr., of Philadelphia; Charles A., Jr., who married Miss Julia Allison, of Xenia, Ohio; Mary S., who married E. P. Gleason, of Philadelphia, and Howard Kingsbury, now a practicing dentist of Philadelphia.

Dr. Kingsbury's first wife having died, on September 29, 1853, married Miss Anna Harris Stratton, daughter of Dr. Benjamin Stratton, his medical preceptor, of Mount Holly, N. J.

He was an ardent lover of nature in all its phases and a great traveler. He visited Europe on three different occasions. His passion for outdoor life and the pursuit of game and fish took him many times to the wilds of Maine and Vermont. He was a devoted disciple of Isaak Walton, not only in the sport of angling but in the scientific study and research of all that pertained to salt and fresh water fish. He caught many salmon in the waters of the Restigouche, in the province of New Brunswick, also in the waters of England, Ireland, and Cape Breton. He possessed a fund of knowledge of fish and game not found in books, but gained through experience. He took a keen interest in the efforts to stock our rivers with food fish, and was a member of the Pennsylvania Fish and Game Protective Association. Dr. Kingsbury was much interested in seamen, and was President of the Seaman's Aid Society.

He was a great reader of choice literature and had a valuable library; was fond of poetry, and had many selections at his tongue's end with which he entertained his friends.

Before and during the Civil War Dr. Kingsbury was a staunch supporter of the Union. He offered his services as an assistant surgeon after the battle of Antietam, where he did much to alleviate the sufferings of the wounded. On the inside of a brass pocket compass he prized very highly was inscribed: "This Compass was carried by me during the Battle of September 20, 1862, and is presented to my friend, Dr. Charles A. Kingsbury, as a slight testimonial of my gratitude for his great kindness to me after I was wounded.—Chas. M. Prevost, Col. 118 Regt. P. V."

Dr. Kingsbury was a man of wonderful personal magnetism, which attracted to him hosts of sterling friends, who admired his generous nature and congenial manner.

Dr. Kingsbury's death occurred October 2, 1891, from acute nephritis. He was buried in the cemetery at Allentown, N. J. He left an honorable name, a rich heritage to those who follow in his footsteps.

The principal facts contained in this sketch were obtained from Dr. Howard Kingsbury, Philadelphia, son of the subject of this sketch; Dr. Louis Jack, Philadelphia; Dr. William H. Trueman, and from a biographical sketch by Dr. John McCalla in the "Pennsylvania Journal of Dental Science," Vol. I., April, 1874, pages 121-130.

HENRY JAMES BYRON McKELLOPS, D. D. S.

FIRST PRESIDENT OF THE MISSOURI STATE DENTAL ASSOCIATION, AND FIRST TO
RECOMMEND THE EMPLOYMENT OF DENTISTS IN THE ARMY AND NAVY.

In the death of Dr. H. J. McKellops, which occurred April 23, 1901, St. Louis lost one of the foremost and the last of her pioneers in dentistry.

Dr. McKellops began the practice of the profession when scarcely half a dozen dentists had offices in St. Louis, his colleagues then being such men as Isaiah Forbes, B. B. Brown, Aaron Blake, Isaac Comstock, Edward Hale, Sr., J. S. Clark, C. W. Spalding. All of these had passed away when death closed his career of fifty-six years active practice. In that time his reputation had extended over the United States and Europe, he had contributed much to the material advancement of the profession of dentistry, more possibly than any one else in St. Louis and had been instrumental in bringing to it the prestige it enjoys as one of the learned professions.

Dr. McKellops was born at Saline, near Syracuse, N. Y., on August 31, 1825. His father, James McKellops, died before his son had entered his teens. He was a large land owner at one time and the pioneer manufacturer of table salt in Western New York. In 1840 young McKellops came to St. Louis with his mother and sister, entering one of the public schools. Active and intelligent, he soon after obtained appointment as a messenger on the Missouri Legislature, when General Sterling Price was speaker of the House and General Marmaduke, by virtue of his office as Lieutenant Governor was president of the senate, using this money, the first he ever earned, for tuition at the University of Missouri at Columbia, where he studied from 1842 to 1844. He next returned to St. Louis and took a course of bookkeeping in Jones Commercial College. The proprietor, Jonathan Jones being a good friend of his aided him in getting employment in the office of John M. Parker, the City Register, where opportunity presented for forming a wide circle of acquaintances, valuable afterwards when he entered the practice of dentistry. Young McKellops was of an affable disposition and soon made many friends, among them Dr. Chas. A. Pope, the dean



H. J. McKellops

of the old St. Louis Medical College who influenced him to study medicine in 1846 and 1847. For the next six years he attended many of the lectures, but did not receive the degree of M. D.

Through the persuasion of his brother-in-law, Dr. George Silvers, a St. Louis dentist, he was drawn from medicine to dentistry. He opened his first office on Fourth St., opposite the Court House. A desire to succeed, natural ingenuity and a love of the mechanical arts soon made him an expert operator, and soon after opening his first office he soon commanded a clientele of the highest class, which continued until the end of his professional career. He traveled many thousands of miles during his professional life to attend dental meetings to impart his knowledge and demonstrate his skill as an operator. He was equally willing to learn. In 1856 when Dr. Robert Arthur, of Philadelphia, was exploiting sponge gold as a filling material, McKellops made a trip to that city to learn the method. When "adhesive foil" was introduced he soon became an expert in its use. He is the father of gold and platinum heavy foil 20-40 and 60 gauge with which he wrought wonders. Many beautiful examples of his skill are standing today in the mouths of his old patients as monuments to his excellent manipulative skill. Among his students and assistants were such well known men as Geo. L. Field (Detroit), J. B., Wm. N., and Alex Morrison, John J. R. Patrick, Edgar Park and H. H. Keith, all of which afterwards made a name for themselves in dentistry.

In 1855 the degree of D. D. S. was conferred on him by the Ohio College of Dental Surgery in recognition of his skill and services to the profession, his fame already having extended through Missouri and eventually through all the States of the Union. A sojourn in London and Paris from 1863 to 1865 and later several visits to Europe make him known abroad as well. In London in 1864 he introduced the use of the mallet in dentistry first before the Odontological Society of London, also at Paris the same year. Dr. McKellops also introduced in St. Louis the use of continuous gum work, invented by Dr. John Allen of Cincinnati. In his profession he was inventive in practice and always to the front in every step of progress in dental surgery. He had a standing order with the leading dental depots to send him every new invention put on the market. He was a subscriber to all the dental periodicals and new books, and possessed likely the most extensive dental library in the world, valued at \$20,000 at the time of his death. Also a large collection of rare curios, bric-a-brac, instructions, etc. He was fond of fancy dress and had a hobby of collecting and wearing fancy neckties. At the time of his death he had some 2,000 ties.

A loving cup was left by him on which appears the following: "Presented to Dr. H. J. McKellops by the First District Dental Society of the State of New York, as an expression of the high esteem and as a token of its appreciation of the inestimable services rendered by him as Supervisor of Clinics at the Annual Meeting, New York City, January 21, 1891."

A year before his death, the local St. Louis Dental Society, March 24, 1900, tendered Dr. McKellops a banquet and loving cup as a token of their appreciation of his great professional services.

He is admitted to have done more than any other dentist in St. Louis to educate the better class of the public up to an appreciation of the importance of the care of the teeth, the value of high class dentistry in contrast to low class, and an acquiescence in a proper remuneration for such services. His influence in those directions still is felt, and will continue to be felt.

The observation of the necessity of dentists in the army no doubt prompted Dr. McKellops to introduce a resolution at a meeting of the Western Dental Society, held in Quincy, Ill., on July 21, 1858, to the effect that a committee be appointed to memorialize Congress on the necessity of appointing dentists to be attached to the army and navy. The resolutions was adopted and a similar resolution passed by the American Dental Convention in August 1859, also being introduced by Dr. McKellops as follows: "Whereas: Owing to the great inconvenience of the officers and soldiers in procuring competent Dentists, when necessary, and knowing the difficulty in which they are placed, being stationed at distant posts and places where it is impossible for a Dentist to visit, therefore,

"Resolved, That this society appoint a committee of five for the purpose of memorializing Congress on the necessity for appointing Dentists to be attached to the regular army; and that we recommend the matter to the consideration of the general Government."

It is said Jefferson Davis then Secretary of War of the Federal Government favored the employment of dentists for the Army and Navy and no doubt would have succeeded in bringing this about at that period, had he remained in office.

Dr. McKellops married Miss Annie Gower of Tennessee, on April 4, 1849. Eight children were born, five sons and three daughters. Those now living are Henry L. McKellops and Mrs. Josephine Bouvier, of San Francisco; Linton J. McKellops of St. Louis and Dr. Leo G. McKellops of Mazatlan, Mexico.

Personally, Dr. McKellops was a man of high ideals, convivial and warm-

hearted. His sociability found expression in the field of his profession, in the organization of dental societies and associations, which he attended far and near in the proceedings of which he always took a leading part. He was one of the organizers of the St. Louis Dental Society, founded on December 9, 1856 and in 1879 served as its president. He helped organize also the Western Dental Association at St. Louis, April 3, 1856. He was Corresponding Secretary of this Association 1857. He was first president of the Missouri State Dental Association organized Oct. 31, 1865, served as president of the American Dental Association in 1879, and in 1884 was elected president of the Southern Dental Association. He was also a constant attendant of the Mississippi Valley Association of Dental Surgeons and an honorary member of the Kansas and Illinois State Dental Societies.

In social life, no less than in his profession, Dr. McKellops was popular, and he was a particularly welcome guest at social gatherings, because of his brilliant powers in entertaining as a speaker and elocutionist.

Dr. McKellops also had a military side of his career. He was Captain of the St. Louis Cadets, commissioned by Governor Edwards in 1842, and in 1845 at the age of twenty years became a Captain in the St. Louis Legion. In 1846 he commanded the Morgan Riflemen in the Legion's six months' service in the Mexican War, making the noted six months' expedition under Colonel Alton R. Easton, which included New Orleans, Brazos, Santiago and up the Rio Grande to Matamoras. At the organization of the St. Louis National Guards in the fifties, he was enrolled as a member, and served in quelling the riots of those days. Afterwards as Assistant Adjutant General of the First Brigade Volunteers First Division of Missouri. In 1858 he marched across the state with the expedition under General D. M. Frost, to put down the invasion of the "Bushwhackers" and "Jayhawkers" who then were ravaging the western countries of Missouri.

During the Rebellion, in his house was stored and concealed guns, ammunition and other equipments of war which when discovered led to his arrest by the Prevost Marshall of St. Louis. Dr. McKellops was arrested and put in the Gartiot Street Prison and commanded to take the oath of allegiance, this he refused and he was ordered to leave the city or suffer the consequences. This he did with the aid of a troop of Federal soldiers who escorted to the outskirts of the city. With several others he procured a team and drove westward bound for California. While enroute his early medical training came into play while traveling through the territory of Montana, he enjoyed the distinction of having delivered the first white child born in Montana.

He returned from his Western trip and went to Europe, where he resided, practicing in Paris until the end of the Civil war, when he returned to St. Louis. McKellops was a man of much individuality, distinguished presence and of the strongest personality, ardent in his beliefs and equally so in his prejudices. He could love well and hate well. He detested the shams and tricks of the charlatan. He had a scrap book full of advertisements of dentists throughout the country and his courage never failed him on any occasion, to denounce things or men, who in his estimation were dishonest and unethical. His exact type probably will never again appear in dental history. We may say of him as did he who uttered "Thou! O, Shakespeare to our wonder and astonishment hast built for thyself a life long monument."

JOHN M. RIGGS, A. B., D. D. S.

THE ORIGINATOR OF THE TREATMENT FOR THE CONDITION KNOWN AS "RIGG'S
DISEASE."

John M. Riggs, the seventh child of John and Mary (Beecher) Riggs, both of English ancestry, was born in Seymour (Bungay), Conn., October 25, 1811. His parents were both born at Oxford, Conn., and were well-to-do farmers of Revolutionary stock. He had no middle name, but when in college he wrote his name with an M. No one knows why. When he was home on a visit his father said to him: "I see you write your name with an 'M;' what does that stand for?" "Mankey," replied young Riggs. But he never told why.

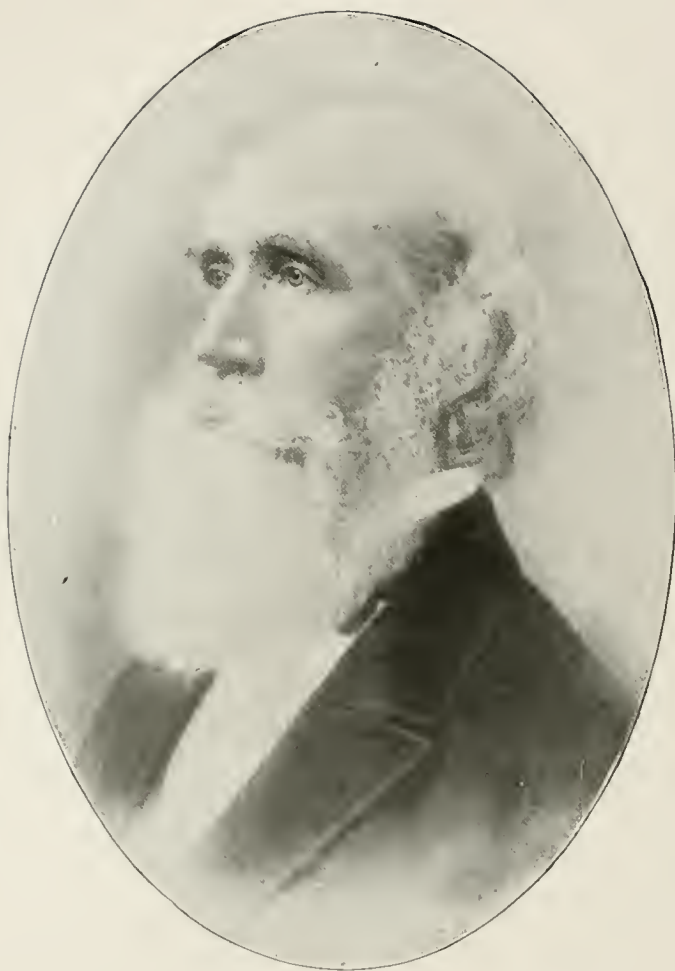
Young Riggs's early boyhood was spent at the home of his parents, where he attended a district school and assisted with the farm work, which, however, was distasteful to him. Being of a mechanical disposition, he was frequently found engaged in building stone fences and walls about the farm. In those days facilities for obtaining implements were not as at this time, therefore when a tool was needed about the farm young Riggs went to the forge and made it. Thus he early acquired proficiency in blacksmithing and stone-masonry.

Besides being an artisan and mechanic, he had a hobby for which he developed an especial fondness and which clung to him throughout his career,—that of building dams and ditches for irrigation purposes. These he planned and perfected with mechanical accuracy and on scientific principles.

Tiring of farm life, he worked a short time at the blacksmith trade, but with a desire for better things from an educational stand-point he concluded to attend college.

He was of a studious turn, and in 1835 entered Washington (now Trinity) College, at Hartford, with the idea of becoming an Episcopal clergyman. Dr. Riggs was a man of ideas and of positive views, and had an opinion of his own, which he never hesitated to express on all occasions.

When he graduated from Trinity College in 1837, the bishop who preached the baccalaureate sermon chose for his subject "The Trinity." At the close of his discourse Dr. Riggs advanced and greeted the bishop by saying, "I be-



J. M. Briggs

lieve in one God, and one God only; I do not believe in three, and I'll be ——if I will preach it." The bishop, much astonished, informed him he would hardly answer to preach the Episcopal faith.

Upon receiving the A. B. degree, young Riggs began teaching school. He was principal of the Brown School, formerly known as the Stone School, now the first district school of Hartford. This position he filled most acceptably for two years, when, still desiring to better his condition, he took a partial course at the Jefferson Medical College at Philadelphia, and then turned his attention to dentistry, which he studied with Dr. Horace Wells at Hartford, where he began practice about 1840 and continued until his death. He was associated in practice in 1832 with Dr. C. Kirkland for a short time, and in 1865 with Dr. Daniel Dwyer for twelve years.

He achieved high distinction in his profession, and in some features of its practice stood at the very head, especially excelling in hygienic treatment of the oral cavity. He was awarded especial honors by the Baltimore College of Dental Surgery, which conferred the honorary degree of Doctor of Dental Surgery upon him in 1879. He was also a clinical lecturer at Harvard University, Dental Department.

Dr. Riggs achieved a wide reputation and high honor in his profession. In 1840 he discovered or originated a method (entirely surgical) of treatment of disease known to the profession as pyorrhœa alveolaris, and his treatment attracted such attention that his name was given to it, and for years it has been and is still called by some "Riggs's disease." Dr. Riggs had great success in the treatment of this disease, and his patients came to him from distant places for treatment. He had a theory that this disease was the origin of General Grant's trouble, having treated and cured a similar case which had so far advanced as to be pronounced "cancer of the tongue." His treatment was wholly surgical, working small instruments with remarkable skill and deftness of touch, sometimes down to the extreme points of the roots of the teeth, removing the cause of the trouble. When the cause was removed he allowed nature to do the rest. In some instances when a therapeutic assistance was needed, Dr. Riggs would prescribe "a little tincture of myrrh to warm up the gums." His first patient treated for this trouble was a Mr. Wells, of Wethersfield, as early as 1840, possibly earlier. It was not until some time after when, fortified by experience, he made known his methods and his success to the profession, many members of which were for a long time sceptical as to the correctness of his ideas. During later years his advice and instruction were often sought. Among his patients at one time was

Madame Parepa Rosa, and while under treatment she said, "Dear doctor, I had rather sing two operas than undergo your treatment." His quick reply was, "Madame, I had much rather hear the operas than to treat you."

Dr. L. C. Taylor says, "Dr. Riggs was so enthusiastic in the general hygiene of the mouth that he made the claim to me in 1876 that if we would clean the teeth well enough and as often as circumstances required we would have no decay. His enthusiasm led him on in the treatment of pyorrhetic disorder until the public seemed to overlook his teachings of hygiene in common cases. He talked it so much that the public said he had 'Riggs's disease on the brain.' His treatment excelled anything I have ever seen for the first time, but his business ability was so poor he would let go his cases and they would lapse back into the original state in a few years. Dr. Riggs may well be called the 'original father of hygienic care of the mouth.' While many others had made feeble efforts in that direction, they failed in their demonstrations to prove their theories well enough to make history.

He was a member of the Connecticut State Dental Association and its president in 1867, and a member of the American Dental Association, before which, in 1865, he gave his views and a clinic, and of the Connecticut Valley Dental Association, which he joined in 1865 and of which he was president in 1871-72. Before this society, June 11, 1867, he gave his first surgical clinic for the treatment of pyorrhœa alveolaris, at that time and by some now called "Riggs's disease," the patient being Dr. E. M. Goodrich, whom he operated upon successfully. The society passed the following resolution in recognition of Dr. Riggs's contribution to science:

"Whereas, The credit of originality in surgery is always conceded to the one who first publicly announces a new operation, appliance, or method of treatment.

"Resolved, That in the judgment of the Connecticut Valley Dental Association the credit of originating and first publicly describing a new treatment for the cure of inflammation of the gums and absorption of the alveolar process, or the so-called 'scurvy of the gums,' thereby saving and restoring to comparative firmness the loosened teeth, is due to Dr. John M. Riggs, of Hartford, Conn., he having detailed his method of operating by a clinic upon Dr. E. M. Goodrich, of Westfield, Mass., at our meeting at Northampton, June 11, 1867. He also operated in Boston in August, 1866, with acknowledged success upon Dr. D. K. Hitchcock.

"Resolved, That this resolution be forwarded to the journals for publication."

His motto was: "The dentist's duty is not to see how many teeth he can fill, but how many he can save from decay." He recommended tobacco as one of the best remedies to prevent decay. He was unusually successful in regulating teeth. He had a large clientele upon whom he operated "painlessly" by administering to them enough chloroform to produce dizziness, then excavating the cavity upon which he desired to operate. When warned by Dr. William H. Atkinson of the danger of this method he said, "Should I meet the misfortune of having a patient die on my hands under the use of chloroform I shall not go out and hang myself, for I shall have the satisfaction of feeling that I used my best judgment, believing that it is based upon the truest knowledge in connection with the whole matter."

He was not a contributor to dental and surgical periodicals. He seemingly had an aversion for writing. His topics for discussion in dental societies were "Suppurative Inflammation of the Gums," "General Dentistry," and "Diseases of the Gums." His voice was often heard in meetings of dental surgeons, and in 1881 he went to Europe and participated in the deliberations and discussions of the Seventh International Medical Congress in London, giving clinical lectures and demonstrations before that body on the prophylactic treatment of teeth and gums.

Dr. Riggs was a participant at the first demonstration of the application of anaesthesia to dental surgery at the office of Dr. Horace Wells, December 11, 1814, when Wells inhaled the nitrous oxid gas prepared by G. Q. Colton, and Dr. Riggs extracted the first tooth ever extracted under an anæsthetic.

That was the first application of anaesthesia to dental surgery. It antedates by nearly two years Dr. Morton's use of ether, and it was no mere experiment, for regularly, after the first attempt, the gas was used in their professional work both by Riggs and Wells.

May, 1866, Dr. Riggs was one of a committee of four appointed by the Connecticut State Dental Association to confer with the members of the State Medical Society with reference to the establishment of a dental department in connection with the medical school at Yale College. The medical men were against the establishment of a dental school. The year following Harvard University saw the advantage of the project and organized the Harvard Dental School in the fall of 1867. In 1870 Drs. J. M. Riggs, James McManus, E. E. Crofoot, and William Blatchley were appointed a committee by the Hartford dentists and the Connecticut State Dental Association to present to the General Assembly of Connecticut and the city council of Hartford a proposition to erect a statue in bronze to the memory of Dr. Horace Wells, the dis-

coverer of anæsthesia. The Assembly and the council each gave five thousand dollars, to which were added individual contributions from the other States and cities, that enabled the committee to secure the services of Mr. Truman H. Bartlett, sculptor, of Boston. The statue was placed in Bushnell Park, Hartford, July 22, 1874.

Dr. Riggs was a man of marked individuality of character. An independent thinker, he was always fearless in expressing his views upon all matters, and he always had views. He was a student in many ways,—a student in his profession and in various directions in general science. He kept abreast with the progress of the time in many fields. He was always a brainy man, of strict integrity. At one time he turned his attention considerably to agriculture. He often participated in the discussions at agricultural gatherings, and none spoke more intelligently than he in giving results of practical experience.

He was in politics originally a Whig, and was among the men of Hartford who were foremost in the political movements which led to the formation of the Republican party, and was a sympathizer with Phillips, Sumner, and others in their anti-slavery ideas when it cost something to express such views. He was a vigorous Abolitionist and an advocate of human rights and human freedom in the widest sense. He acted with the Republican party throughout his life. In religion he was a Naturalist, believing fully in the laws of nature, and attended the Unitarian Church. He was a man of mark in personal appearance. In later years his gray hair, full gray beard, and face showing the stamp of intellect would lead those he met to regard him as a man far above the common stamp.

Dr. Riggs was never married. He was strictly a professional man and possessed little business ability, and was very careless in keeping his accounts. It is said of him, "He would work hard all day and perhaps make a note of his operations in an old gold-foil book and then lose the book." Business reverses a few years before his death depleted his possessions, which were at one time considerable.

Dr. Riggs was a veteran of the Governor's Foot Guard, and on the 19th of October he turned out with the company on the occasion of the celebration of the one hundred and fourteenth anniversary and caught a severe cold. On October 25, his seventy-fifth birthday, he took to his bed. His disease developed rapidly into acute bronchitis, finally attended with pneumonia and typhoid symptoms, which caused his death November 11, 1885. Appropriate funeral services were held by members of his profession. Tributes to the

memory and works of Dr. Riggs were offered by Dr. S. B. Bartholomew, of Springfield, Mass.; Dr. George A. Mills, of New York City, and Dr. C. S. Hurlbut, of Springfield, Mass. The remains were, according to Dr. Riggs's wish, taken to the Lancaster (Pa.) Crematory and incinerated. His ashes were buried at his birthplace, at Seymour, Conn.

The following, "After Death in Arabia," by Sir Edwin Arnold, was the favorite poem of Dr. Riggs. A worn and yellow copy clipped from a newspaper was found after his death in his pocket-book, where he had carried it for years:

He who died at Azen sends
This to comfort all his friends:

Faithful friends! It lies, I know,
Pale and white and cold as snow,
And we say, "Abdallah's dead!"
Weeping at the feet and head.
I can see your falling tears,
I can hear your sighs and prayers;
Yet I smile and whisper this,—
I am not the thing you kiss:
Cease your tears and let it lie;
It was mine, it is not I.
Sweet Sweet friends! what the women lave,
For its last bed of the grave,
Is but a hut which I am quitting,—
Is a garment no more fitting,—
Is a cage from which, at last,
Like a bird my soul hath passed.
Love the inmate, not the room—
The wearer, not the garb—the plume
Of the falcon, not the bars
Which kept him from those splendid stars!
Loving friends! be wise, and dry
What ye lift upon the bier
Is not worth a single tear.
'Tis an empty sea-shell—one
Out of which the pearl is gone;
The shell is broken—it lies there;
The pearl, the all, the soul, is here
'Tis an earthen jar whose lid
Allah sealed, the while it hid
Straightway every weeping eye;
That treasure of his treasury,
A mind that loved him; let it lie!
Let the shard be earth's once more
Since the gold shines in his store!

Allah glorious! Allah good!
Now thy world is understood;
Now the long, long wonder ends!
Yet ye weep, my erring friends,
While the man whom ye call dead,
In unspoken bliss, instead,
Lives and loves you; lost, 'tis true,
By such light as shines for you;
But, in the light ye cannot see,
Of unfulfilled felicity—
In an enlarging paradise,
Lives a life that never dies.

Farewell friends! Yet not farewell;
Where I am ye too shall dwell.
I am gone before your face,
A moment's time, a little space;
When ye come where I have slept,
Ye will wonder why ye wept;
Ye will know, by wise love taught,
That here is all, and there is naught.
Weep awhile, if ye are fain—
Sunshine still must follow rain;
Only not a death—for death
Now I know, is that first breath
Which our souls draw when we enter
Life which is of all life centre.

Be ye certain all seems love,
Viewed from Allah's throne above!
Be ye stout of heart, and come
Bravely onward to your home!
Thou love divine! Thou love alway!
LA ALLAH ILLA ALLAH! yea

He that died at Azan gave
This to those who made his grave

He was a profound thinker and called by some "Old Socrates." In literature he had no time for light reading, but sometimes read a book three or more times aloud, and then studied portions of it for hours. He hardly ever wrote his professional opinions, but excelled as an extemporaneous talker. His blunt frankness, coupled with his liberal religious ideas and erratic manner, made him an attractive character.

The facts contained in this sketch were obtained from Mr. John H. Riggs, Seymour, Conn., grand-nephew of the subject of this sketch; Dr. Charles H. Riggs, Hartford, Conn.; Dr. James McManus, Hartford, Conn.; Dr. Levi C. Taylor, Hartford, Conn.; and Dr. Charles McManus, of Hartford, Conn.

HORACE WELLS, DENTIST.

HUMANITY'S GREATEST BENEFactor, THE DISCOVERER OF ANAESTHESIA.

The subject of this sketch descended from true New England stock, and himself possessed in a marked degree all those qualities which characterize a New Englander. His ancestors were among the earliest settlers of Windsor, Connecticut, under a name supposed to have been originally Wills, but in the progress of time changed to Wells. The grandparents of Horace were Captain Hezekiah Wells and Sarah (Trumbull) Wells. Captain Wells served with honor in the war of the Revolution, and was a man of much influence. He died in 1817. The old homestead, which he built in East Windsor, Connecticut, one hundred and seventy years ago, still remains in the family.

Horace Wells, father of Dr. Horace Wells, married Miss Betsy Heath, of Warehouse Point, Connecticut, and soon removed to Hartford, Windsor County, Vermont, where the subject of this sketch was born January 21, 1815. This son was the oldest of three children, the others being Charles Wells, M. D., who practiced at Manchester, New Hampshire, and Mary, wife of Captain John Cole, a sea captain who resided in Medway, Massachusetts. Mr. Wells, soon after the birth of his first child, purchased a large farm at Westminster, Vermont, near Bellows Falls, on the Connecticut river. Here in a beautiful and romantic locality, and surrounded by every comfort his father could furnish, the childhood of Horace was passed. The parents of young Wells were intelligent and, for that region, wealthy; and having the opportunity, gladly gave their children every advantage for moral and mental culture, sending them to the best schools, and sparing no expense to make them useful members of society. When Dr. Wells attained manhood he was peculiarly active in mind and of a generous disposition.

Young Horace was kept at a select school until he was thirteen years of age, and then went to Hopkinton, New Hampshire, where he spent a year in a private school for boys, kept by a Mr. Ballard, who entertained a very high opinion of the mental qualities of his scholar. Much of his education, before commencing business, was acquired at the academies in Amherst, Massachusetts,



Horace Wells

and Walpole, New Hampshire. During these latter years he taught one district and many writing schools. While at the academy in Amherst he became converted and united with the church, and afterwards led a strictly religious life; he even at one period thought seriously of fitting for the ministry.

Young Wells manifested at an early day the traits so characteristic of the New England boy. He had a mind of uncommon restlessness, activity and intelligence. He early manifested great inventive genius and mechanical talent, and after reaching manhood was known in Hartford as quite an inventor. He constructed and patented several machines which would unquestionably have paid well if pushed upon the market: but he considered his work done when the ideal was embodied and in working order, and his restless mind, regardless of pecuniary considerations, flew off to try its powers upon some other subject of thought.

In the year 1834 he commenced the study of dentistry at Boston. Dental colleges were not then established, but Wells acquired the best professional education at that time possible, and after completing his studies opened an office in that city. The residence in Boston made him acquainted with medical men there, a fact which influenced him in seeking medical assistance at that place rather than in New York at the time when he announced his great discovery of anæsthesia, an occurrence he afterwards had deep reason to regret. Still he was not frustrated in his main design, viz., letting the world know how valuable his discovery was, for his visit to Boston and statement of his case did result as he hoped in its reception by the world, yet in a manner greatly trying to one so artless and truthful, and so far removed from every taint of selfishness and dishonor.

Wells' ingenuity led him to invent and construct most of his dental instruments, and the dexterity and judgment with which they were used soon made him popular, and he speedily took rank among the first in a city justly celebrated for its skillful dentistry. His professional brethren admit his high standing in the department to which he devoted himself.

In August, 1840, L. P. Brockett of Brooklyn, New York, then a medical student at Hartford, went to Dr. Wells to have a molar tooth extracted. The operation was so difficult and painful that Dr. Wells remarked, "There ought to be some method of mitigating such suffering."

He had several students, among them John M. Riggs, of Hartford and Wm. T. G. Morton of Boston, the latter of whom afterwards was one of those who laid claims to the discovery of the principle of anæsthesia. In later years Dr. Riggs was very active in the development of the idea which immortalized

Wells, particularly at the period when a little discouragement would probably have retarded, if it had not completely prevented, its development. Dr. Riggs was moreover honored by being the first individual who ever operated on a patient under the influence of anæsthesia. He did this on Wells himself, by extracting a tooth. It was fitting that the head which gave birth to so great a thought should itself furnish the first practical clinical proof of its importance. Still, though very instrumental in adding the great discovery, and most honorably connected therewith, Dr. Riggs ever honestly gave the credit to Wells, in whose brain the thought took its inception. Dr. James McManus, who has made a careful study of the subject, says:

"Professor G. Q. Colton gave a course of lectures on chemistry and natural philosophy in Hartford early in December, 1841. To popularize the idea as well as amuse the audiences at these lectures the exhibition of the effects of laughing-gas on willing subjects was made a special feature of the entertainments. Dr. Horace Wells, well known in Hartford as a skillful dentist, attended with his wife the lecture given the evening of December 10, 1844. Dr. Wells inhaled the gas; the effect not being as pleasant as his wife wished for, she reproached him on the way home for taking it and making himself ridiculous before a public assembly. Dr. Wells went to that lecture to see, hear and learn. He inhaled the gas, and subsequently watched its effects on others.

"The exciting incident to him at the evening's entertainment was when Mr. Samuel A. Cooley, a well-known Hartford man, gave a lively exhibition of the effects of the gas by running and jumping about and falling, striking his legs against the wooden settees, and acting apparently perfectly unconscious of possible danger. After the effects of the gas had passed off, Dr. Wells asked him if he was hurt, and he replied that he did not know it at the time, but on looking at his legs found them bleeding from the injuries he had received. Dr. Wells, turning to Mr. David Clark, said, "I believe a man, taking gas, could have a tooth extracted or a limb amputated and not feel the pain."

"Before leaving the lecture hall Dr. Wells asked Mr. Colton whether one could not inhale the gas and have a tooth extracted without feeling any pain, and he replied that he had not given the subject any thought; that he had been giving laughing-gas for over a year and such an idea had not occurred to him, and he could not express an opinion. Dr. Wells then said that he was inclined to try the experiment on himself and have a troublesome tooth extracted if he would bring a bag of the gas to his office the next day. Late

that evening Dr. Wells called on Dr. Riggs to tell him that he had attended the lecture of Professor Colton and with others had inhaled the gas, that Mr. Cooley had injured himself and was not conscious of it at the time, adding, 'If he did not feel pain, why cannot the gas be used in extracting teeth?' A long discussion followed as to whether it would be right or safe for them to make an experiment with possible danger staring them in the face, but Dr. Wells was so confident and fearless that he agreed to take the gas and have a tooth extracted the next day if Dr. Riggs would perform the operation. As requested, the next morning Professor Colton, Drs. Wells and Riggs, made the experiment, having as onlookers, a Mr. Colton and Mr. Samuel A. Cooley, the star performer at the entertainment the night previous. Dr. Wells sat down in the operating-chair, took the bag in his hands, and inhaled the gas until he was insensible, when Dr. Riggs extracted an upper wisdom tooth. Dr. Wells remained unconscious a short time and on recovering exclaimed, 'I did not feel it so much as the prick of a pin.' 'A new era in tooth-pulling.' 'It is the greatest discovery ever made,' and remarks of a similar nature, being, naturally, perfectly delighted with his successful experiment. Thus the not improbable value of nitrous oxide gas, as suggested by Humphrey Davy in 1800, proved a certainty December 11, 1844, when the first surgical operation was successfully performed on Dr. Horace Wells while under its influence. On that day modern anæsthesia¹ was given to the world, and nitrous oxide gas proved to be a blessing to suffering humanity and the forerunner of all other anæsthetics.

"Prof. Colton stated that later Dr. Horace Wells came to him to learn how to prepare the gas, that he gave him full information and advised him to go to Boston for necessary apparatus, as he could not furnish it. A few weeks after leaving Hartford he saw a paragraph in the papers announcing that Dr. Wells was extracting teeth without pain, and he stated on several occasions in connection with that paragraph how and when the discovery originated. Dr. J. M. Riggs testified that, 'We were so elated by the success of this experiment that we turned our attention to the extraction of teeth by means of this agent, and continued to devote ourselves to this for several weeks almost exclusively.'

¹ The word "anæsthesia" was coined by Dr. Oliver Wendell Holmes in 1846 who wrote Dr. Morton: "Everybody wants to have a hand in the great discovery. All I will do is to give you a hint or two as to names or the name to be applied to the state produced and to the agent. The state should, I think, be called anæsthesia. The adjective will be anæsthetic. Thus we might say the 'state of anæsthesia' or the anæsthetic state.' "



Memorial Bust in the Army and Navy Museum, Washington, D. C.

"Dr. E. E. Marcey, a physician, testified that while a student at Amherst College he had inhaled the gas, and also the vapor sulphuric ether, and knew that the operation and effect of these substances were nearly similar, but he did not know that one or the other would produce insensibility to pain until Dr. Wells made the announcement. At the invitation of Dr. Wells he called at his office and witnessed the gas given and a tooth extracted, the patient showing neither excitement nor the slightest consciousness of pain. Dr. Marcey then suggested to Dr. Wells the use of sulphuric ether, his impression being that it possessed all the anæsthetic properties of the gas, was equally safe, could be prepared with less trouble, was less expensive, and could always be kept on hand. Dr. Marcey said he would prepare some ether and give him some of it, and also would make a trial of it himself in a surgical case that he expected to operate on in a few days. A few days later the ether was given to the patient alluded to, and an encysted tumor the size of an English walnut was cut from his head. Dr. Wells was present, the operation was successful, and conclusively proved the anæsthetic properties of ether vapor. Dr. Wells then told of a conversation held with Dr. Riggs regarding the effects of both ether and gas, and gave the opinion of Prof. Rodgers, of Washington (now Trinity) College, that the vapor of ether was much more dangerous than that of the gas.

"At the urgent request of Dr. Wells I read what I could easily procure in relation to both articles and gave as my opinion that, as the gas was more agreeable and easy to inhale than the ether, it was, upon the whole, more safe, and equally efficacious as an anæsthetic." Dr. P. W. Ellsworth was also asked respecting the comparative safety of nitrous oxide gas and sulphuric ether, and he gave his opinion in favor of the gas, and advised Dr. Wells to confine himself to that agent. With ample evidence to substantiate his claim, a few weeks later, in January, 1845, Dr. Wells went to Boston to make generally known and to demonstrate his great discovery. He obtained permission of the elder Dr. Warren to address his class in the medical college, and at the close of his remarks he gave the gas to a boy and extracted a tooth. The boy made an outcry and the students hissed and cried "Humbug!" although the boy on recovering said he did not know when the tooth was drawn. The first and only trial allowed Dr. Wells was denounced as a failure. If the surgeons of the Massachusetts General Hospital, or any of the medical or scientific men of Boston or the country, ever knew of the suggestion made by Sir. Humphrey Davy, they evidently had forgotten it, or had not faith in his statement. Nor were they willing to treat seriously any attempt to investigate the anæsthetic properties of nitrous oxide gas.

"Dr. William T. G. Morton had been a student of dentistry with Dr. Wells in 1841 and 1842, but was living in Boston at this time, and renting an office of Dr. C. T. Jackson. About this period occurred an event which had a most important bearing on Wells's future career, and which is mentioned because showing the reason why and how Wells, Prof. Charles Thomas Jackson and Wm. G. T. Morton (the three claimants) first came together.

"Dr. Riggs had become possessed of a new and peculiar solder for plate work, a great desideratum in dentistry, whereby eighteen-carat solder could be made to flow on eighteen-carat gold. Wells proposed to set up an office in Boston, and by help of this thought a great business could be done. The terms of partnership could not be agreed upon nor would Riggs part with his secret. Wells then set to work and speedily discovered a solder of equal quality except not quite as beautiful. With this Wells and his former student, Morton, went to Boston, opened an office, called on the chemist, Prof. Jackson (who for a round fee certified to the value and purity of the solder), and commenced business. This was what made Morton acquainted with Jackson, and shows why the aid of the latter was sought on a subsequent occasion. The partnership between Wells and Morton was brief, and the former returned to Hartford, leaving the latter in Boston.

"In the 'The Boston Atlas,' October 23, 1844, appears the following:

CO-PARTNERSHIP NOTICE.

"This certifies that the co-partnership of Wells and Morton has been dissolved by mutual consent, October 18, 1844.

"HORACE WELLS."

"Both Morton and Jackson in conversation with Dr. Wells tried to discourage him, having no faith in his statements, and advised him to give up the use of the gas. Dr. Jackson, noted then as a chemist, treated the subject as lightly as did the medical students, calling it a humbug. That a dentist from a country town could appear in Boston and announce to the world that he had made such a grand discovery was not to be credited, and Dr. Wells soon learned that not one of the influential medical or scientific men in that learned city could be induced to interest themselves in investigating the properties of the gas or lend him any assistance whatever while he remained in that city. They preferred to hiss and cry 'Humbug!' rather than to give Dr. Wells a second chance to prove the value of his discovery. He returned to Hartford greatly depressed and in poor health, but in a short time was able to resume his practice. During that and the following year he continued to

give the gas freely, and when not able from any cause to attend to the patients, he would bring or send them to the office of Dr. Riggs to have him give the gas.

"In the Boston 'Medical and Surgical Journal' of June 18, 1845, there was an article written by P. W. Ellsworth, M. D., of Hartford, Connecticut, on the 'Modus Operandi of Medicine,' in which he states that 'the nitrous oxide gas has been used in a number of cases by our dentists, and has been found to perfectly destroy pain and no unpleasant effects follow its use.' The unjust assumption of the Boston surgeons, that he had made a complete failure in the single experiment allowed him, and their contemptuous treatment of him and his claims, gave a set-back for two years to the general introduction of surgical anæsthesia, and millions of sufferers were deprived of the use of a safe anæsthetic for nearly twenty years. At this time Hartford had no medical journal to push the introduction of this discovery, and for a time Hartford people alone realized that such a discovery had been made.

"Dr. Wm. T. G. Morton, while studying dentistry, lived in Farmington, Connecticut, and make frequent visits to Hartford as a student to recite to Dr. Wells. He was present when Dr. Wells gave his demonstration before the surgeons and class in Boston, and had frequent talks with him while he remained in the city. During the summer of 1845 he visited Hartford and called with Dr. Wells on Dr. Riggs to talk about the gas, and he wanted them to give him some and tell him how it was prepared. Dr. Wells referred him back to Dr. Jackson, who, he said, could prepare it for him, or tell him how it was prepared, as he knew all about it. In the summer of 1846 Miss Elizabeth Williams, of Hartford, met Dr. Morton in Stafford Springs, Connecticut, learning that he was a dentist, she told him her experience with the gas and that Dr. Wells had extracted a tooth for her on the 6th of March, 1845. He asked her about the effect and operation of the gas, and gave no intimation to her that he had any knowledge of the gas, or any other anæsthetic. Drs. Wells, Riggs and Terry continued to give the gas in their practice with success, and they were greatly surprised, when they learned that Drs. Johnson and Morton were heralded in the Boston papers in the fall of 1846 as the discoverers and inventors of a compound which, they stated, by breathing into the lungs, induced so deep a slumber as to enable them to perform the most painful surgical operations with entire unconsciousness on the part of the patient. Dr. Morton made his so-called discovery September 30, 1846, when he extracted a tooth for Mr. Eben Frost, while he was under the influence of his pretended compound.

He made known the result of his experiment to Dr. Jackson, and they found, as Drs. Mearcy and Wells, of Hartford, had demonstrated nearly two years earlier, that by inhaling the vapor of sulphuric ether it would produce unconsciousness, and surgical operations could be performed without pain while under its influence. Soon after he called on Dr. Warren, who arranged for him to test his compound on the 16th of October, when he made his first experiment at the hospital in a surgical case. Boston surgeons were at last convinced that anæsthesia had been discovered, and Boston men were the discoverers. The managers of the Massachusetts General Hospital were now ready to claim for their institution the honor and credit of first demonstrating this great fact to the world, and Boston surgeons, Boston newspapers, and the public, were now very much interested and only too ready and anxious to assist the assumed discoverers in introducing their pretended discovery, and advising its use in general surgery.

"Dr. Morton wrote to Dr. Wells, October 19, telling him of his discovery, stating that he had patented it, and wishing to know if he would not like to visit New York and sell rights to use it. Dr. Wells replied to that letter, October 20, that he would be in Boston soon, and he and his wife took an early train the Saturday after, arriving in Boston about midday. After dinner he called on Dr. Morton, remaining with him about two hours. On his return Mrs. Wells asked him if Dr. Morton had discovered anything new, and he replied; 'No. it is my old discovery, and he does not know how to use it.' He said he perceived what it was on entering his room; he knew it was nothing but ether. On being asked if he would assist in selling his patent rights, he replied, 'No, he would have nothing to do with him.'

"Dr. Wells and wife returned home on the following Monday. The statement made in the letter of October 19, to Dr. Wells, that he had patented his compound, was not true, and at the interview a few days later, in Boston, it did not occur to him that Dr. Morton intended to deprive him of the credit of the original discovery, but that he did claim the discovery and application of a new and more convenient agent. The possible money value that might accrue to them from the vigorous pushing of the discovery set the doctor and dentist to figuring out futures. They decided to apply for a patent, which the Patent Office records say was done in the names of Drs. C. T. Jackson and W. T. G. Morton, October 27, 1846; but before the patent was granted, Dr. Jackson, fearing he might be censured or even expelled from the Massachusetts Medical Society if he took out a patent, made an assignment, which apparently gave to Dr. Morton all his right, title, and interest in the

then assumed invention, but for which act he obligated Dr. Morton to pay him ten per cent, of all he made out of it, and later on, through his counsel, he demanded twenty-five per cent of all the profits both at home and abroad, which Dr. Morton refused to give.

"The patent was granted November 13, 1846. Circulars were printed with the names of Drs. Jackson and Morton as the discoverers and inventors of a compound that later proved to be the well-known fluid sulphuric ether, and they were distributed broadcast. Agents were sent out to sell the rights. The doctor, dentist, or anybody, qualified or not, who would pay the price, could buy the right to use this wonderful and powerful agent, the scale of prices being for cities of over one hundred and fifty thousand inhabitants, two hundred dollars; fifty thousand and under, one hundred and fifty dollars, cities under five thousand, thirty-seven dollars, for a term of seven years.

"The following advertisement was published in 'The Boston Evening Traveler' of November 29, 1846, signed by Drs. N. C. Keep and Wm. T. G. Morton:

"The subscribers having associated themselves in the business of dentistry, would respectfully invite their friends to call on them at their rooms, No. 19 Tremont Row. They *confidentially* believe that the increased facilities which their united experience will afford them of performing operations with elegance and dispatch, and the additional advantage of having them performed without pain, by the use of the fluid recently invented by Drs. Jackson and Morton, will not only meet the wishes of their former patients, but secure to them additional patronage."

"This was a unique appeal to the Boston citizens for patronage, equaling, if it does not far surpass, many of the advertisements that are to be seen in the newspapers of our day.

"Soon after the extraction of the tooth for Mr. Frost by Dr. Morton, Dr. Jackson sent a letter to a friend in Paris, France, giving the particulars of his pretended discovery, stating that he had persuaded a dentist in Boston to administer the vapor of sulphuric ether to his patients when they wished to have teeth extracted, and they suffered no pain during the operation; and later a second letter stating that it had been used in the Massachusetts General Hospital with great success. These facts he wished his friend to communicate to the Paris Academy of Sciences. Soon after the letters were sent there was a falling out between the Boston discoverers. The public then learned from their controversy of the bitter feeling existing, and found, also, that each one denied that the other had any just claim for the credit of the discovery.

"The Paris Medical Institute, in response to the letters sent by Dr. Jackson, and with the knowledge only of his claim and that of Dr. Morton, awarded to each one the sum of two thousand five hundred francs; to Dr. Jackson for the discovery of the principal, and to Dr. Morton for the application of it. The Institute at the time knew nothing of the claim of Dr. Wells. While the controversy was going on so bitterly in Boston, Dr. Wells (in 1847) decided, partly on account of his health, to take a trip to Europe, and while there to interest, if possible, and to present his claim as the discoverer of anæsthesia to, the English and Continental surgeons. While in Paris, he made the acquaintance of the eminent American dentist, Dr. C. Starr Brewster, who was much interested in the subject and through whose good influence the subject was again and properly brought before the French Academy of Medicine. The expense of this trip to Europe was paid by the purchase of pictures which Wells imported and sold on his return to the United States. On Dr. Wells' return to this country he found the influence of medical and scientific men, the professional journals, and newspapers were all in favor of sulphuric ether, and the tide running in favor of the claims of Drs. Jackson and Morton.

"Late in the year 1847 a new agent, chloroform, was introduced by Prof. James Y. Simpson, M. D., of Edinburgh, Scotland, and that for a time seemed likely to supplant sulphuric ether. Dr. Wells gave the nitrous oxide gas on January 1, 1848, to Henry A. Goodale, and Dr. P. W. Ellsworth amputated his leg. Also January 4, gave the gas to Mrs. Ganriel, and Dr. S. B. Beresford removed a fatty tumor from her right shoulder. Dr. Wells later in the month went to New York to visit the hospitals and to urge his claims with the surgeons in that city. The worry, annoyance and injustice done him by the rival claimants increased by the experiments he was making with different anæsthetic agents, brought on a serious mental disturbance and under these influences, disheartened and despondent, he put an end to his sufferings January 24, 1848."

The following letter to Dr. Wells from his friend, Dr. C. Starr Brewster, arrived soon after his death:

PARIS, January 12, 1848.

"MY DEAR WELLS:

"I have just returned from a meeting of the Paris Medical Society, where they have voted that to Horace Wells, of Hartford, Connecticut, United States of America, is due all the honor of having first discovered and successfully applied the use of vapors or gases whereby surgical operations could be performed without pain. They have done even more, for they have elected you honorary member of their Society. This was the third meeting that the Society had deliberated upon the subject. On the two

previous occasions Mr. Warren, the agent of Dr. Morton, was present and endeavored to show that to his client was due the honor but he, having completely failed, did not attend the last meeting. The use of ether took the place of nitrous oxide gas, but chloroform has supplanted both, yet the first person, who first discovered and performed surgical operations without pain, was Horace Wells, and to the last day of time must suffering humanity bless his name.

"Your diploma and the vote of the Paris Medical Society shall be forwarded to you. In the interim you may use this letter as you please.

"Believe me ever truly yours,

"BREWSTER."

The French Academy of Science conferred upon him the degree of Doctor of Medicine.

Drs. Jackson and Morton from the start had persistently stated that the nitrous oxide gas was a failure: that it was not an anæsthetic; and they also as persistently ignored the fact that Drs. Wells and Marcy had used sulphuric ether with success, but had decided, in consultation with Dr. Ellsworth, that as the gas was more pleasant and agreeable to take, as well as less dangerous, it would be better to continue its use in dental operations. The death of Dr. Wells left the field open for them, and as the new agent, chloroform, was making a very successful record, it soon became so popular that the use of gas was given up and by many forgotten.

Hartford had no medical school, hospital surgeons of national reputation, or professional journals, to compete with Boston, that had all these advantages, while the great influence of Boston surgeons, journals, and wealth were freely given to aid the Boston claimants in their attempt to rob Dr. Wells of the honor and credit of his discovery. Boston influence aided them in their successful appeals to the rich and the profession for remuneration, and Boston money helped them in wining and dining a memorable lobby influence in its attempts to get through Congress a bill granting them one hundred thousand dollars for the use of their pretended discovery. Through the efforts of the Hon. Truman Smith, United States Senator, and the members of Congress from Connecticut, the passage of the bill was defeated.

Soon after the introduction of chloroform, and the death of Dr. Wells, the use of gas was abandoned.

The surgeons and public were soon convinced that chloroform and ether were uncertain and dangerous agents. The frequent deaths reported and the ill effects that often followed their use, caused a feeling of dread on the part of both patient and operator, so that comparatively few cared or dared to risk taking or giving either of them. From 1848 until 1862 the longing for a

safe anæsthetic was universal. Again Prof. Colton appeared before the public as a lecturer and exhibitor of "laughing gas." In his lectures he related the history of the discovery of anæsthesia by Dr. Wells, and after his lecture in New Britain, in 1862, he gave instructions to Dr. R. C. Dunham and he introduced the use of gas in his practice there, and in Hartford; and at a private entertainment to a specially-invited party in New Haven, June, 1863, he also related the history of the discovery of anæsthesia by Dr. Wells.

Dr. J. H. Smith, for many years treasurer of the Connecticut State Dental Association, was present, and then offered to try the gas again if Colton would administer it. Colton said he would gladly do it, as he wished to again demonstrate what could be done with the gas. Their first patient was an old lady, for whom they extracted seven teeth; after recovering from the effects of the gas, she was so pleased with the result that she allowed Colton to announce to his next audience her name and that she had had seven teeth extracted without pain, and without any ill or unpleasant effects from the gas. In three weeks and two days from that time Drs. Smith and Colton extracted over three thousand teeth.

Their success induced Prof. Colton to abandon the exhibition and to establish The Colton Dental Association in Cooper Institute, New York, devoted exclusively to the extraction of teeth with the gas.

In a pamphlet published by Dr. Colton in 1866 he says: "Whatever credit I deserve in connection with this matter is derived from the fact that I revived the use of gas, after it had been condemned, dead and forgotten as an anæsthetic, from 1848 to 1862. In this revival and demonstration of the value of gas as an anæsthetic is not the world practically indebted to me for its use? If I had not revived it, by whom would it have been done? That poor Wells failed to convince the world of its value does not militate in the slightest degree against the honor he deserves as the discoverer of anæsthesia. He did all that a man could do under the circumstances."

Dr. Colton's great faith, and the cooperation and good work done by Dr. Smith, encouraged the dental profession to again take up the use of gas, and from that time on its use has been general all over the world. It is only those who have had to undergo severe surgical operations that can fully realize what a great blessing the discovery and introduction of anæsthesia is to the world, and it is only the surgeons now living that were in practice over fifty years ago, that can fully appreciate and realize the blessing this discovery is to the profession.

Several years after Dr. Wells proclaimed and demonstrated his discovery

Dr. Crawford W. Long, of Georgia, discovered that he had discovered as early as 1842 the properties of sulphuric ether, and had performed an operation on a patient while under its influence. This information was not given to the public until December, 1849. He says in referring to his delay in making the fact known: "I leave it with an enlightened medical profession to say whether or not my claim to the discovery of anaesthesia is forfeited by not being presented earlier; and with the decision which may be made I shall be content." It is possible that many surgeons in different parts of the world, at nearly the same time, or in the remote past may, with the aid of some agent, Eleazer Parmly, Robert Arthur, and S. P. Hullihen, the latter have performed surgical operations painlessly as claimed by Dr. Long, but failing to publicly announce their success the world gained no benefit. Dr. Wells discovered, demonstrated and proclaimed the fact at once; and then within one month's time, went to Boston to make it generally known. The public should not be allowed to forget that the simple, honest desire of this dentist was to give his discovery to all, to be "free as the air we breathe." The motive that actuated Drs. Jackson and Morton, when they put their assumed invention on the market, was to get money. Its commercial value was its dominant idea, and it was well worked up. Dr. Jackson, sneaking behind the cover of an assignments of his rights in order to hold his membership in the Medical Society, demanded twenty-five per cent. of all the profits, both at home and abroad, from Dr. Morton. This resulted in a Kilkenny fight, each denouncing the other as a fraud. A bitter controversy followed, each claimant having friends enough to furnish the medical journals and newspapers with lively reading for years after.

Eighteen years after the death of Dr. Wells there appeared in the "New York Medical and Surgical Reporter" of January 6, 1866, a report made by Dr. J. M. Carnochan, chief of staff in the New York State Emigrant Hospital, of three surgical cases that he performed, the patients being under the influence of nitrous oxide gas given by Dr. Colton, and February 10, of the same year, he reported four more operations upon adults, making in all seven successful capital operations under the influence of the gas. After the first operation he said: "I have no hesitation in stating that the nitrous oxide gas as an anaesthetic is far superior to either chloroform or ether; the operation being attended by no nausea or sickness, and without the dangerous effects often incident to chloroform and ether. It is not improbable that had Wells lived and had the boldness to follow up his early successful experiments, chloroform and ether would never have been thought of as anaesthetics." In Dr.

Carnochan's second report, giving a resume of seven (?) capital operations under the influence of nitrous oxide gas, he says: "I have also during this time used chloroform and ether in many operations, and my opinion in regard to the superiority of the nitrous oxide gas as an anaesthetic is still unchanged. I believe, however, that there is great room for improvement in the mode of administration of the gas."

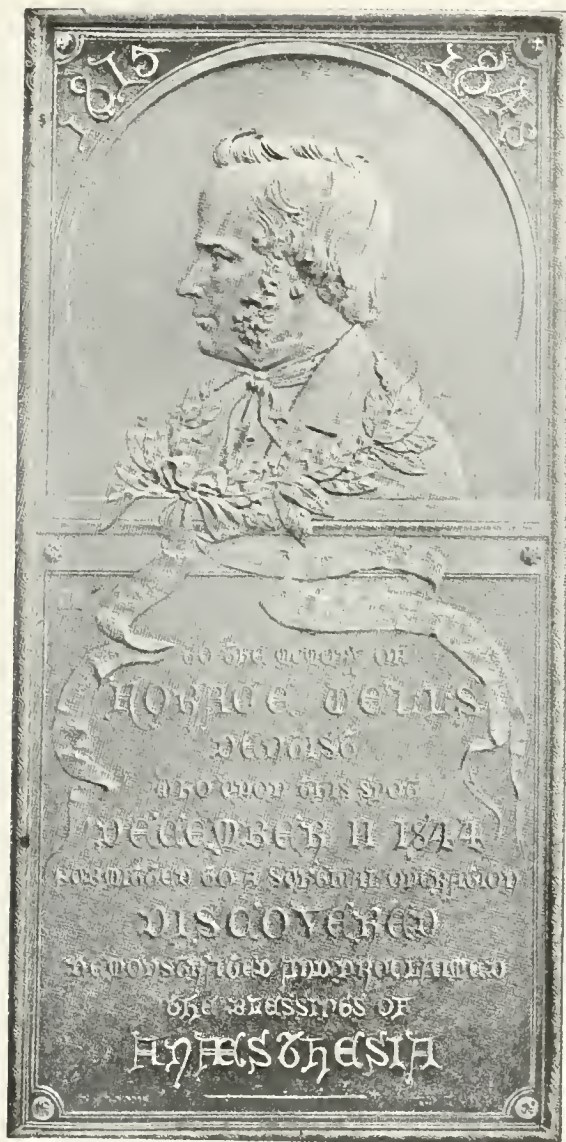
The success attending the revival of the use of the gas, and the testimony given by the surgeons in New York and elsewhere, was simply a repetition of the success attained by Dr. Wells while he was alive and able to attend to his practice in Hartford.

The General Assembly of Connecticut, in 1847, passed resolutions in favor of Dr. Wells as the discoverer of anaesthesia, and declared that he was the discoverer of anaesthesia, and that he was entitled to the favorable consideration of his fellow-citizens, and to the high station of a public benefactor. The Court of Common Council of the city of Hartford passed resolutions to the same effect. The physicians and surgeons of the city united in a testimonial declaring their belief in the justice of the claims of Dr. Wells. The Paris Medical Society, January, 1848, voted that to Dr. Horace Wells, of Hartford, Connecticut, is due all the honor of having first discovered anaesthesia.

The testimony of Valentine Mott, M. D., of New York, December 20, 1852, is that Dr. Wells is entitled to the credit and honor of the discovery. R. D. Mussey, M. D., Cincinnati, Ohio, in a letter to the Hon. Truman Smith, United States Senator from Connecticut, December 24, 1852, says: "I have long regarded Dr. Wells as entitled to the credit, and to the pecuniary award, if any such consideration is to be made, for the invaluable discovery of anaesthesia."

Dr. C. H. Haywood, who was house surgeon in the Massachusetts General Hospital at the time Dr. Morton administered his pretended compound there, in a letter to U. S. Senator Truman Smith, concludes with these words: "But before all let full and ample justice be done to that noble genius which first conceived the grand idea which has been the basis of all the experiments and the father of all the discoveries. To the spirit of Dr. Horace Wells belongs the honor of having given to suffering humanity the greatest boon it ever received from science."

In the early days it was difficult to prepare the gas in large quantities or to keep it on hand any length of time. Soon after the revival of its use, in 1862, many improvements were made in apparatus for making gas, and later,



Bronze Tablet presented to the City of Hartford.

when the process was so perfected that dealers could furnish the gas to the profession in liquid form, in iron cylinders holding from one hundred to fourteen hundred gallons, to be used from as desired, without danger of waste, loss of power or purity, all the former objections to its use were removed.

Prof. S. D. Gross, of Philadelphia, some years ago, when speaking before the American Medical Association, said that "Dentistry is the most important specialty in medicine. Many people come into the world, and go out of it, who never require the services of other specialists; but no child is born who does not sooner or later require the service of a dentist." Terse and true as this statement is, equally true is the statement that modern anaesthesia, in all the varied modes of its administration, is undeniably the result of a dentist's heroic experiment and discovery. It is also sadly true that it was two years after the discovery, and after repeated successful operations in the hands of a Hartford dentist, before Boston surgeons could be induced to accept the fact that an anaesthetic had been discovered.

Dr. James Y. Simpson, of Edinburgh, Scotland, was the only man connected with the introduction of anaesthesia who had a remarkably fortunate life. He was eminently successful in his profession, acquired wealth, was created a baronet, and was probably better known all over the world for a while than any one else connected with the discovery. The last professional article he gave to the public was written by dictation, while on his sick bed, in reply to a bitter and unjust attack made upon him by Dr. Jacob Bigelow, of Boston. It was published in the "Boston Gynaecological Journal," May, 1870. He writes:

"An American dentist (Wells) works out to its practical results the suggestion published in England half a century before, by Sir Humphrey Davy, and which you seem to wish to efface from anaesthetic records; and he travels a long distance to place the important result before the Medical School at Boston and some surgeons at the Massachusetts Hospital. There is a slip in the single experiment allowed him. He is spurned and hooted away. In doing this, the Medical School of Boston thus delays the whole subject of artificial surgical anaesthesia for a couple of years. Was not the Medical School of Boston then, in your violent language, 'chargeable with the continuance of operative tortures' for that period much more than Sir Humphrey Davy? Did not your school stamp out and thus prevent for two years more the most beneficent discovery which has blessed humanity since the primeval days of paradise?"

Sir Benjamin Ward Richardson says in his monograph, "The Mastery of Pain:"

"It was fortunate that ether came in before chloroform; because if chloroform had come in first, the number of deaths from it would probably have put a stop to anaesthesia at once."

It is infinitely more fortunate that gas came in before ether, for the de-

mands for its use are more urgent and general, and the deaths from it do not number more than one in over a million. There is no doubt if Dr. Wells had been a resident of Boston, an M. D., and a member of the staff of the Massachusetts General Hospital, his discovery in 1844 would have been quickly accepted. As a stranger and a dentist, his claim as a discoverer and the evidence he had to sustain it, as well as the prediction made by Sir Humphry Davy many years before as to the probable properties of the gas, could not awaken enough interest in the minds of the stupid, stubborn, and jealous men that he appeared before to induce them to make another trial of the gas. They condemned it as a humbug, and suffering humanity was deprived of the blessing of an agreeable and safe anaesthetic for over twenty years.

The record of millions of successful operations made while under the influence of the gas, with evidence accumulating daily, all over the world, that the gas is a safe and reliable anaesthetic, and abundant testimony to prove that Dr. Wells was the first to submit to a surgical operation while under its influence, are facts that cannot be blotted out by the efforts of magazine writers that either ignorantly or wilfully ignore them, nor does the inscription on the ether monument that stands in the public garden in the city of Boston negative the claims of Dr. Horace Wells.

The monument in Boston commemorates the discovery of anaesthesia by inhalation of ether as first proved to the world at the Massachusetts General Hospital, October, 1846. It is a beautiful work of art, with bas-relief pictures that tell to the onlooker the great blessing that some one had given to suffering humanity. The inscription tells an untrue story, and the stranger seeks in vain for the name of the world's great benefactor.

On Bushnell Park, in Hartford, there stands a monument erected by the State of Connecticut and the city and citizens of Hartford, commemorating this great discovery of anaesthesia first given to the world in Hartford in 1844, with the name inscribed and a portrait statue of Dr. Horace Wells, to whom alone belongs the honor of its discovery, and who gave it to the world to be "as free as the air we breathe."

At a memorial meeting held in Philadelphia, December 11, 1894, under the auspices of the American Dental Association, to commemorate the fiftieth anniversary of the discovery of anaesthesia by Horace Wells, a committee was appointed, on motion of Dr. Robert Huey, to erect in Washington, D. C., a permanent memorial to the discoverer. It is a bronze bust, the work of J. Scott Hartley, sculptor, of New York. The cost was one thousand dollars, the contribution from members of the dental profession of America. The bust



Wells Monument at Hartford.

is permanently deposited in the Army and Navy Museum in the national capitol.

The Connecticut State Dental Association decided to commemorate the fiftieth anniversary of Wells' discovery of anaesthesia. This was held at Hartford, December 10, 1904, under the auspices of the Association. Prominent dentists and laymen were present to do honor to the occasion. Following the banquet the assembly unveiled a memorial tablet which was contributed by 270 American dentists and presented to the city of Hartford.

Horace Wells was interested in natural history, especially in ornithology, a branch in which he was well posted and on which he gave frequent lectures to the public.

"Dr. Wells continued in the regular exercise of his profession until the year 1844, making great improvement in his department, and inventions outside of it. He wrote and published in 1838 a treatise called 'Essay on Teeth.' He built a beautiful cottage on Lord's Hill, in a spot at first supposed not particularly eligible, but his taste, cultivated by the romantic scenery of his younger days, soon developed the beauties of the situation and a few years found the location and region around selected for some of the most aristocratic houses in the city.

Dr. Wells died in New York on the 24th of January, 1848, aged 33 years, at a period when his claims were being acknowledged by Europe and America, and just as he received the announcement that the French Academy had honored him with their diploma of recognition. He went to New York a few weeks before his death for the purpose of introducing anaesthetics in the hospital and in dentistry. But the impression that chloroform was a better agent than nitrous oxide gas or ether led him, with his usual zeal, to experiment upon himself to a dangerous extent with this powerful and almost unknown agent. By this his mind is believed to have been injuriously affected, and this was soon conclusively indicated by acts wholly foreign to his nature. His unfortunate end, and the circumstances attending it, consummated the proof of this point—his reason had been upset, and there was nothing to stay his own hand that cut the thread of his existence.

He was buried in the North Cemetery, in Hartford, where his grave will in years to come be visited and honored by those who revere the memories of the benefactors of mankind, among whom Wells certainly was not the least.

His widow and only son survived, who, with little pecuniary ability or foreign aid and relying only on the force of truth, contended eighteen years against the power of wealth profusely lavished, and all the machinery usually

brought to bear in such cases; nevertheless, truth slowly, but surely, won its way, and the discovery of Wells was acknowledged by the medical and surgical profession and by the whole scientific world.

In 1844 Horace Wells gave to the world his wonderful discovery that surgery could be divested of pain, a discovery pregnant with untold value to the world, but of almost unmingled woe and sorrow to himself and his afflicted family. His widow declared that this great boon to the world "had been to her family an unspeakable evil," for it cost the life of her husband and substituted the "*res angusta domi*" in place of a lucrative profession and a happy home.

Dr. P. W. Ellsworth says: "Knowing Wells intimately, living beneath the same roof at the time when he went to Boston to announce his discovery, and in almost daily communication with him during the whole period between the birth of his great thought and the hour when his dead body, a sacrifice to his zeal and love of truth, was borne from my own door to its last resting place, I can and do bear witness to Horace Wells only belongs the honor of giving to the world a discovery which has played a more important part as respects surgery, than any other ever made, unless we except Harvey's of the circulation of the blood. The full value of this discovery is not yet known; after ages will make new applications and further improvements.

"Wells knew nothing of Davy's suggestion, but is it to be supposed reasoned out his discovery as one works out a problem? Neither he nor any one else could do this, but his mind, directed to the subject, was prepared to seize a fact and draw conclusions therefrom.

"This fact has been noticed a thousand times by other and more learned men, but not so close observers or so rapid reasoners. It was at once grasped by Wells, who saw at a glance the consequences which must flow from a trivial occurrence."

The facts contained in this sketch are compiled from notes on "The History of Anæsthesia," by James McManus, D. D. S., Hartford (Clark and Smith, press, 1896), and from a biographical sketch on "The Life of Horace Wells, M. D.," by P. W. Ellsworth, M. D., published in "An Inquiry Into the Origin of Modern Anæsthesia," by Hon. Truman Smith, Hartford (Brown and Gross, press, 1867).

JOHN DE HAVEN WHITE, M. D., D. D. S., A. M.

PIONEER DENTAL TEACHER, EDITOR, WRITER, AND ORGANIZER.

The subject of this sketch was a man of many talents. A man of brain and brawn, possessing a great ambition coupled with great physical energy, a lover of nature, a true *bon vivant* with some erratic qualities that Richard Mansfield would have termed "*the eccentricity of genius*."

John De Haven White was born near New Holland, Lancaster County, Pa., August 19, 1815. He was the son of John and Sarah De Haven White, sturdy Pennsylvania farmer folk, of strong Presbyterian faith.

As is customary with country youths, he received his early education in a country school; his educational advantages were very limited, as at the age of seven both his parents died and he was bound out to a farmer. His early lot was a hard one. Being ambitious, he ran away from the farm and became an apprentice to a carpenter with whom he worked by day, and, being of a studious nature and very ambitious, studied far into the night. In after years he used to facetiously state, "It is more congenial and more profitable to be engaged in dentistry than in building pig-pens."

One marked characteristic of John De Haven White was his intense will-power and strong determination to succeed. No task was apparently too trying. No obstacle so great, but he could overcome it. In 1836 he went to Philadelphia, bent on studying medicine. Here he became a student of James Bryan, M. D., with whom he read medicine, and eventually worked his way through the Jefferson Medical College, from which he received the M. D. degree at the session of 1842-43, at which time he delivered a thesis entitled, "The Treatment of the Exposed Dental Pulp, Preparatory to the Operation of Filling," which was published in the "Dental News Letter," Vol. VI, July, 1853, p. 183, and "Dental News Letter," Vol. VII, 1853, p. 14.

During his studentship with Dr. Bryan, and prior to his attendance on the course of the lectures at the Jefferson Medical College, he became attached to dentistry and took private lessons in practical dental surgery, the only method available at that time, under the preceptorship of Dr. Michael A. Blankman, at 293 Walnut Street, and soon equipped himself for practice.



L. D. Haven White

Following this, he located for a short time at Middletown, Pa., where he devoted his entire time and attention to dentistry. Here he treated Senator Simon Cameron, whose friendship he retained until the Senator died.

Soon tiring of country practice and longing for a field to give his talent and energy full sway, he returned to Philadelphia in 1830 to practice dentistry and finish his medical course, and at the age of twenty-four entered upon a successful professional career that developed and made him one of the prominent figures in dentistry, both as a writer, teacher, and practitioner. For years he enjoyed an extensive practice, his clientele being of the best families in Philadelphia. His first office was located at No. 35 South Tenth Street, about two blocks from the Jefferson Medical College.

Dr. White was not only an intellectual giant, but a physical one as well, and possessed a superabundant amount of physical vigor and enthusiasm which was a marvel to those who knew him.

He was closely identified with the rise and progress of dental education in Philadelphia, and as editor of the "Dental News Letter" and the "Dental Cosmos," and by his connection with the early dental societies, his good influence upon the profession in this country was marked and widespread. Almost at the beginning of his professional career he sought to bring about that community of interests among members of the dental profession which in later years has contributed much to its success. Under his leadership a few, congenially minded, gathered together at stated times at one another's offices for social intercourse and mutual interchange of professional thought and experience. At these little gatherings new appliances, new methods, new theories, and items of interest of various kinds, that one or the other had gleaned from every-day office practice, were offered and discussed. This little band included the most prominent and progressive members of the dental profession in Philadelphia. Dr. White, fresh from his medical studies and still an earnest student, was well qualified to instructively discuss the special medico-dental questions then before the profession, and in these matters he was considered an authority. As time passed and these informal meetings became more and more appreciated, the question of enlarging their usefulness by organizing a dental society engaged their attention. As a result of this, in the fall of 1845 a circular was sent to all of the practicing dentists of the State of Pennsylvania whose address was known, inviting them to meet in convention at Philadelphia to consider the advisability of organizing a State dental society. The convention met December 15, 1845, and organized "The Pennsylvania Association of Dental Surgeons," an organization that has proved long-lived, it

still exists, and has an active membership of nearly one hundred. Its first meetings were held in the Philadelphia Museum building, which was generally known as the Chinese Museum. In this movement Dr. White took an active part. When this society commemorated its fiftieth anniversary, December 16, 1895, Dr. White, with three others, were the only survivors of those who took part in its organization. He was then quite infirm and unable to be present, dying a few days later. He was President of this association in 1857.

Immediately after the society was organized, Dr. White, with Drs. Stephen T. Beale and Ely Parry, took steps toward organizing a dental college in Philadelphia, modeled after that then recently opened at Baltimore. He regarded Philadelphia as a great centre of medical science and conceived the idea of establishing the first dental college in that city. Owing to various difficulties encountered this effort was not successful until 1852, when the Philadelphia College of Dental Surgery was organized. In this movement Dr. White took an active part. Some letters recently discovered show that while much of the work of organizing the college was performed by Drs. Beale and Parry, Dr. White was the "strong man" back of the movement, who, by his council and influence was relied upon to overcome the opposition encountered. Dr. White took a prominent part in the faculty, and proved an acceptable and well-qualified teacher.

Dr. White was its first Professor of Anatomy and Physiology, and delivered the valedictory address to the first graduating class, and in 1854 he was made Professor of Operative Dental Surgery and Special Dental Physiology, which chair he continued to hold until the college ceased to exist in 1856. Dr. Elisha Townsend was dean the first and second sessions, Dr. White the third session, and Robert Arthur the fourth and last session.

After the close of the fourth session of the Philadelphia College of Dental Surgery the faculty, owing to a disagreement with the Board of Corporators, resigned in a body and organized the Pennsylvania College of Dental Surgery in the fall of 1856, with Dr. Robert Arthur as dean. The Philadelphia College of Dental Surgery then went out of existence. Dr. White took no active part in the second college. The growing cares of his large practice demanded all his time; he had seen his earnest efforts for professional advancement crowned with more than expected success, the college had an excellent faculty and he was content to leave it in good hands. From this time on, while he continued his labors as editor of the "News Letter," and later the "Dental Cosmos," and to contribute to current dental literature, he gradually dropped out of professional activities and lost his position as a professional leader, and

later took no part or interest in professional matters. This is much to be regretted. His long and wide-extended experience, his talent and his skill and his ability as a speaker, writer, and teacher would have been appreciated long after they were lost to the profession. He did his best work when active workers were few, and when an enthusiastic and vigorous leader was most needed, and well merits the credit of helping to make secure the foundation of that tripod upon which professional advancement has originated, the Society, the Journal, and the College.

In the field of dental literature Dr. White was best known; he was a vigorous and fearless writer, stating his opinions without fear of results, and making many enemies by his pointed views. He never modified or measured words in writing or speaking where he thought it necessary to be heard, and as a result was unpopular with many.

In October, 1853, he became the chief editor of the "Dental News Letter" in collaboration with Dr. J. R. McCurdy, its former editor. August 1, 1859, the journal was discontinued, to be succeeded by the "Dental Cosmos," with Dr. White as editor-in-chief, and Drs. J. H. McQuillen and George J. Ziegler as associate editors. Dr. White continued in this connection until 1865 when he retired, to be succeeded by Dr. McQuillen.

Dr. White was a recognized authority on all dental subjects; this, with his impressive and aggressive personality, gave him a prominent position in the profession. His contributions to dental literature were numerous and highly appreciated. Among the many papers Dr. White contributed to the pages of the "Dental News Letter" and "Dental Cosmos" are the following:

"Treatment of the Dental Pulp," "Diseases of the Gums," "Amalgam," "Irregularity of the Teeth," "Absorption of Dentine," "Treatment of Exposed Dental Pulp," "Treatment of the Alveolar Abscess," "Materials for Plugging Teeth," "Rhizodontropy," "Dental Neuralgia," "Projection of the Lower Jaw," "Practical Hints," "Large Plugs," "Atmospheric Pressure Plates," "Anatomy and Physiology of Dentine," "Tooth-edge," "Caries and Necrosed Bone," "The Sensibility of Dentine and its Treatment," "Facial Fistula," "Gutta-Pereha for Dental Purposes," "Difficult Diagnosis," "Case of Diseased Antrum," "Prepared Chalk and Lime Water," "The Mouth and Teeth," "Arsenical Paste," "Dental Caries," "Chloride of Zinc," "Extraction of Teeth," "Crystalline Gold," "Oxy-Chlorid of Zinc," "Pulp Treatment," and many other articles of equal interest and value.

He wrote on nearly all dental subjects and the products of his prolific pen were not confined alone to scientific subjects, but he published a volume

of poems entitled "Mary Blain and Hazel Dell, and Miscellaneous Poems," published by King & Baird (1870), Philadelphia. Mary Blain and Hazel Dell were his favorite horses, and the poem shows his love for horses, which was a ruling passion with him. One of his best efforts, written in 1839, is entitled "God's Glory." The lines are as follows:

"God's glory breaks from every star
That studs the vaulted sky,
Rides on the lightning's fiery ear
As it quickly dashes by.

"His glory rides upon the waves
As they battle o'er the deep,
Dispels the gloom around the graves
Where weary mortals sleep.

"It sparkles from each crystal spring
That from the mount doth flow;
The bird rejoicing on its wing
Doth but His glory show."

With his poems he frequently entertained his friends and patients, either by reading or reciting them. He was fond of ballads and sang well, and was very fond of violin music, although he did not play that instrument. He was of a convivial disposition and fond of having a good time.

Dr. White was a tireless worker. When living in the suburbs, and at a distance from his office, he was there to meet appointments as early as six o'clock in the morning and kept at work continuously, at times until sundown. He took but few vacations, and these were frequently spent in gunning. He was fond of gun practice, and recommended practice in a shooting gallery to give that steadiness of hand so necessary in dental practice.

When in his prime, Dr. White was a skillful and rapid operator; he was a close and studious observer, accurate in his judgment, and quick with his decisions. He lost but little time in deciding what to do. He believed in using effective tools effectively. His excavators and chisels were formed with several distinct cutting edges, so that they could be used in different positions in the cavity. His well-developed and well-trained muscular hand handled these with remarkable skill and rapidity. His ideas regarding tool-formation and his favorite patterns were freely given to the profession, but were not generally used. They required for effective use a strong, well-trained muscular hand, guided by an unerring eye, such as Dr. White and few besides him possessed. He was a vigorous and uncompromising opponent of amalgam,

making gold foil used non-cohesively his stand-by. He did not cultivate the fine art in filling teeth, and made no effort to produce the exquisite finish in which some of his compeers excelled. He worked rapidly: his gold fillings were solid; they stayed where he put them, and they preserved teeth. With this he was satisfied. He did not take kindly to cohesive gold, and at times opposed its use with more warmth than the occasion called for and thereby gave offence. While he presented to the profession many excellent suggestions that have been appreciated and profitably used, they may all be classed with the many practical, helpful ideas, which, while doing a "world of good," make but little show. Few have done more for their profession than did he, and, unfortunately, but few of its once prominent members are so well-nigh forgotten.

As time passed, even he, massive, well-formed, vigorous man that he was, with a "constitution of iron and nerves of steel," bowed to the strain of constant work, work, work. His hand lost its cunning, his work deteriorated, and he ceased to be the master he once was. While his later work has been slightly spoken of, it may safely be said, but very few dentists have done as much good work as did Dr. White, and but few will have as many long-lived fillings to their credits as he. While his "output" of work was large, his charges were moderate, and his earnings far from "princely." He made the profession better for his being a member of it, and well deserves an honored place among the profession's benefactors.

Dr. White began to lecture privately upon dental subjects in the early forties, and continued these until the formation of the Philadelphia College of Dental Surgery in 1852. Among his private students were Samuel Stockton White, the founder of the S. S. White Dental Manufacturing Company, and the late Dr. Thomas W. Evans, who made such a reputation as a practitioner in Paris. It is said that Napoleon III urged Dr. J. D. White to join Dr. Evans in forming a National Dental School in Paris. This offer was declined by Dr. White, as it would involve the sacrifice of his large practice in Philadelphia. The late Dr. Theodore Chupein and Dr. Robert Huey, of Philadelphia, also Dr. Charles and Elwood Hopkins and a Dr. Foster, of Canada, besides his two sons, were his students. He was a vigorous and thorough teacher, popular with his college students, who recognized the superiority of his intellect.

Dr. White was honored by a number of institutions of learning. The St. Louis University, of St. Louis, conferred the Honorary Degree of A. M. upon him, and he received the Honorary Degree of D. D. S. from the Baltimore

College of Dental Surgery, in 1850. He joined the American Society of Dental Surgeons March 25, 1850. Also was a member of its successor, the American Dental Convention, of which he was Vice-President at the seventh annual meeting at New Haven, Conn., August 6-8, 1861.

Dr. White was married, in 1836, to Miss Mary Elizabeth Meredith, of Philadelphia; to them was born one daughter, Mrs. Sarah De Haven Vanlott, and two sons, Dr. Horace Meredith White and John De Haven White, both students of their father, and practicing dentists at this period (1908) in Philadelphia. Dr. White had a brother, Dr. William R. White, who also practised in Philadelphia.

Dr. White was prominent in the Masonic Fraternity, and in the last few years of his age was an inmate of the Masonic Home, Philadelphia, where he died of heart disease, December 25, 1895, in his eighty-first year.

Dr. Louis Jack, of Philadelphia, knew Dr. White well, and says of him: "Dr. White had a large practice, but later in life his professional influence over his fellows was indifferent. His methods grew careless and his fees were ridiculously small. He was a man of strong mental and physical power. He was handicapped by an extreme ego, which prevented him from measuring his own deficiencies, or appreciating the good qualities of others. His conversation was profuse, interesting, and persuasive, even to the point of carrying away the minds of others while in his presence. He had many delusions and fallacies which his friends overlooked. I once heard him spend an hour or more in tearing to pieces Gray's "Elegy," as being deficient in practical qualities and unworthy of the reputation it holds as a poem. I considered him, and still do so, as a man of strong, natural qualities, dwarfed and spoiled by mental and moral elements of character which nullified his inherited endowments."

Dr. Robert Huey, of Philadelphia, one of Dr. White's students, says: "Dr. J. D. White's personality impressed his patients greatly and they had unwonted faith in him, his judgment and ability. Many of them would wait for hours to be served, although they had kept their appointment punctually. He taught patients the necessity of 'ventilation' for pulpless teeth and they believed him. He convinced me that it was worse than useless to remove all carious dentin before filling a cavity. That it was a good protection to the pulp and could not increase unless in presence of moisture, which could be prevented by a tight filling. (Luckily for me, James Truman knocked that notion out of me when I got to College.) I mentioned that personal fact to show the impress he could make upon one, in spite of common-sense observations.

"He was not on intimate terms with any of his students or employees; Dr. Chupein, his best mechanic in the laboratory, disliked personal interviews with 'the old man,' but he always treated us fairly well when we came up to time with our work and it was good, but woe to the man who sprung a plate or broke teeth in soldering, he would be sure to be asked, 'What in the h—ll he was good for, anyway?'"

Dr. Theo. G. Lewis, President of the Buffalo Dental Manufacturing Co., writes me: "While a student in the Pennsylvania College of Dental Surgery, in 1861, I saw bluff, forcible and willful Dr. J. D. White many times, who, although not connected with the College at that time, would occasionally make his presence known to the awe-stricken students, by his characteristic pomposity.

"Your mention of his love of horses, coupled with his vigorous character, reminds me of an incident that I once witnessed. I happened to be in Kern's Instrument Factory one day, when Dr. White rode up to the door on horseback. Without dismounting, the Doctor leaned over, unlatched the door and rode in, gave his order for a certain instrument in a precise, peremptory manner, then wheeling his horse rode out again with as little ceremony as would be when riding out his stable. This incident is entirely characteristic of the man. Dr. Louis Jack's statement of Dr. White's 'extreme ego' totals the personality of Dr. White completely."

J. De Haven White was a man of iron will, of apparent hauteur of manner, yet very friendly, with many good traits, much force of character, and who must be recognized as an original thinker and as one of our professional pathfinders, who occupied a most conspicuous position in dentistry, in his day and generation.

The principal facts contained in this sketch were obtained from the "Dental Cosmos," Vol. XXXVIII., April, 1896, p. 363; the "International Dental Journal," Vol. XVII., February, 1896, p. 129; Dr. Wm. H. Trueman, Philadelphia; Dr. Louis Jack, Philadelphia; Dr. Robert Huey, Philadelphia.

HOMER JUDD, M. D., D. D. S.

A SCHOLARLY PIONEER LEADER, ORGANIZER, TEACHER, AND EDITOR, OF ST.
LOUIS.

The published genealogical record of the Judd family embraces over 1850 names up to the year 1845. Surnames to distinguish families were first taken in England by men of rank and were gradually used by the common people of thirteenth century. Lower, in his "Essays on Family Nomenclature," printed in London in 1844, supposes that surnames did not begin to descend from father to son among the middle and lower classes until about 1300 A. D.

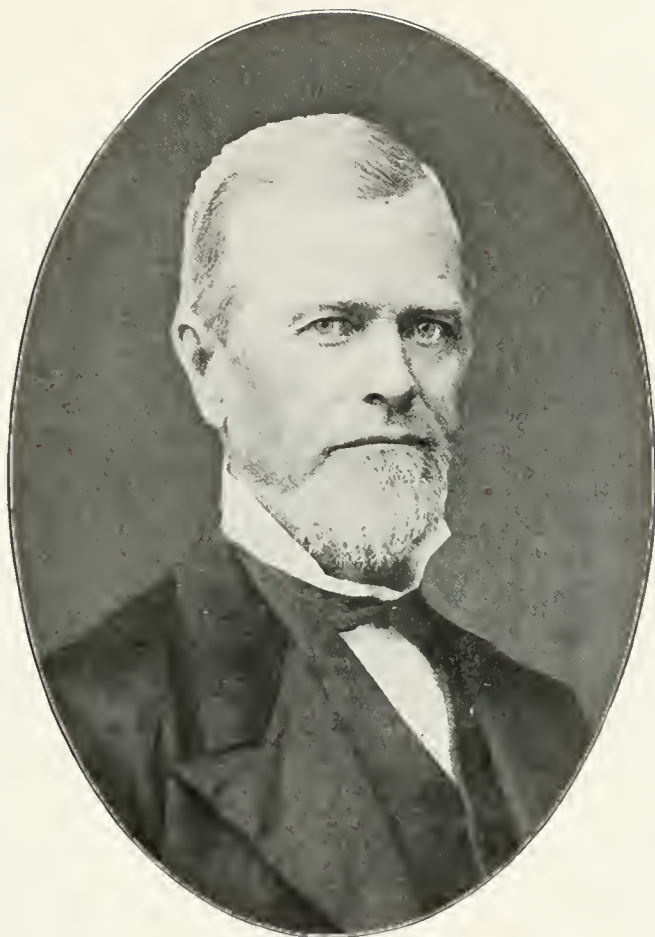
Lower believes that the surname Judd came from the Christian name Jude, just as many other surnames are found from Christian names, as Peters from Peter, Phillips from Phillip. A person called John the son of Jude changed his name to John Jude or Judd, and latter became his surname. Judson, meaning the son of Judd, is a surname, as also is Judkin, signifying little Judd. Judaeus is the Latin for Jew and is often found in the Latin records of England, as Aaron Judaeus, meaning Aaron the Jew. In the "Rotuli Hundredorum," or Rolls of the Hundreds, made by commissioners about 1274 and 1275, the word Judeus appears many times, as Leo Judeus, Benedictus Judeus, Solomon Judeus. It may be that Judeus here is sometimes used as a surname. In these rolls many surnames are found similar to those of the present day.

There are certainly two Judds in the Rolls of the Hundreds about 1275,—viz., Henry Judde, of the County of Kent, and John Judde, of Oxfordshire.

The old English poet Gower, born in 1320, names one of the companions of Wat Tyler Judde. In Rymer's "Foedera" John Judd appears in 1529 and 1533, and he seems to have been in office under Henry VIII.

Sir Andrew Judd was a "skinner" in London,—that is, a dealer in skins and furs. He was a son of John Judd, of Tunbridge, in Kent. He was a knight, and became Mayor of London in 1550. He was wealthy and endowed a grammar school at Tunbridge, which was called "Judd's Grammar School."

In the proceedings in Chancery in the reign of Elizabeth, before 1600,



He fiedle

John Judd, son of Richard Judd, Nicholas Judd, and William Judd were concerned in cases relating to land.

The Judd coat of arms is described in Burke's "General Armory of England Scotland, and Ireland" (London, 1842), in heraldic language, which few understand.

Judd. (London and Tunbridge. County Kent. Lord Mayor of London, 1550.) Gules a fesse raguly between three boars' heads coupé argent. (This is Sir Andrew Judd's coat of arms.)

Judd. (Middlesex.) Gules a fesse raguly between three boars' heads erased argent—Crest—on a ducal coronet, or a cockatrice's wings displayed proper.

Burke gives also three Jude coats of arms. One of these has three boars' heads. Perhaps some of the Judds, centuries ago, were hunters of the wild boar.

Thomas Judd, the first of the line in the Judd family in America, came from England, in 1633, and settled at Cambridge, Mass. He was granted a home lot of four acres of land, August, 1635, upon which he built a house. He was also granted more land in 1635 and admitted to the freemen of the colony May 25, 1636. He removed to Hartford, Conn., 1636, traveling through the wilderness to the Connecticut River, where he was also granted land. Here he was a substantial farmer and an influential man and was a deputy to the General Court, May, 1647 to 1679. He then removed to North Hampton, of which town he was one of the selectmen, 1682. He was also deacon in the church of the three different communities in which he lived.

For his influence and service to the colonies he was connected with, large tracts of land were granted to his children and grandchildren several times between 1708 and 1730. In 1662 the General Court granted him, for public services, two hundred acres of land. All of this proves that he was an influential and respected citizen of the communities in which he lived.

The direct family from Deacon Thomas Judd may be traced through the genealogical record down to Asa Judd, who married Adah Sweet, May 6, 1812. They lived in Tyringham, Massachusetts. To them was born a son named Homer, at Otis, Berkshire County, Massachusetts, March 29, 1820. His father was a respectable farmer and built and operated the first paper mill at Tyringham, Massachusetts and represented his town, 1841-45, to the General Assembly from Tyringham.

Homer attended the common schools of the neighborhood and afterwards enjoyed the higher advantages of Lee and Worthington Academies and had

as a fellow-student Cyrus W. Field, afterwards of Atlantic cable fame. At the academies he was an assiduous student in Greek and Latin, and also became proficient in French, Spanish, and German, besides obtaining some acquaintance with Hebrew and Sanskrit. His tastes were literary, and much of his life was spent in study and research.

As a boy young Judd spent much of his recreation time hunting and fishing, a sport he followed throughout his whole career. He was one of the expert rifle shots of the country. One case is recorded when in Colorado, at an advanced age, in the last year of his life, with five shots from his rifle he killed five deer.

After his scholastic course, hearing wonderful tales of "the far West," he went to Kentucky, where for a short time he taught a subscription school, and won neighborhood fame as a "crack" marksman. Later he traveled to Missouri and followed the same employment in Howard and Boone Counties. Tiring of the monotony of this and longing for better things in life, he returned to Massachusetts and studied medicine with Dr. Jas. Welch, of the village of Lee, and took a course of lectures at the Berkshire Medical College at Pittsfield, from which he graduated and received the M. D. degree, 1847. Soon after he went to Baltimore and took a private dental course with Dr. Cyrenus O. Cone, a talented teacher of the day, and immediately went to Ravenna, Ohio, where he practiced medicine and dentistry. While here he visited Urbana, a nearby town, and practiced dentistry.

In 1849, again desiring a taste of Western life, and warmed by the "gold fever," he started with a wagon train to California. He was appointed Train Surgeon and treated his companions medically on the trip. When the train arrived at Santa Fe, New Mexico, Dr. Judd determined to locate there, and was the first professionally trained dentist to practice in that Territory. After remaining there one summer he returned to Ohio, subsequently to move to Warsaw, Ill., where he formed a partnership with Dr. Charles Coolidge, a physician, Dr. Judd practicing dentistry and medicine. There he took a prominent part in all matters relative to progress. He was a member of the school board for several years and served one year as superintendent of the public schools. He was also active in the organization of the Hancock County Medical Society. Dr. Charles Hay, father of the late Secretary of State, John Hay, was an intimate and professional friend of Dr. Judd's during his twelve years' residence in Warsaw.

During the Civil War he was a contract surgeon in the hospital service and was on duty at Pittsburg Landing, Vicksburg, and Fort Donaldson.

After the battle of Shiloh he offered his services and was appointed Surgeon of the Thirty-fourth Missouri Infantry, and was one of the four surgeons charged with the care of five hundred wounded soldiers on board of a hospital steamer. Subsequently he was appointed surgeon of the Fortieth Regiment Missouri Volunteers and served with them at the battles of Nashville, Franklin, and Spanish Fort. He remained in the service some months after the close of the war, being stationed at the Huntsville, Alabama, Hospital, August, 1865, he was honorably mustered out of service and returned North to resume his practice.

When mustered out he removed to St. Louis for the practice of dentistry exclusively. It was here he did his best work. He soon took front rank, and was an office associate with Dr. John S. Clark, one of the most progressive of St. Louis pioneers. Their office was at Sixth and Myrtle Streets.

His special line of research was the study of histology, and for years he served on the section on histology in the American Dental Association; in the proceedings of this society may be found his papers and committee reports on this subject. He spent much time experimenting with the microscope, and was largely instrumental and very active in organizing the St. Louis Microscopical Club.

Dr. Judd was ever active in doing things to elevate the profession. With Drs. John S. Clark, Isaiah Forbes, William H. Eames, Andrew M. Leslie, H. J. McKellops, and others, he was active in the organization of the Missouri State Dental Association, of which he was elected the first recording secretary, and at the second annual meeting he was elected president, and at the third annual meeting he was re-elected to that office. He took an active interest in the society and contributed materially, in early days, to its success.

Realizing the position that dentistry was one day destined to occupy in relation to general medicine, and prompted by a desire to advance dental education in this section, he was the prime leader in organizing the old Missouri Dental College, the first in this section of the country, and founded on the basis of a medical education in connection with the St. Louis Medical College. The creation of a college was initiated in the Missouri State Dental Association and the college was the offspring of the association. It was organized in 1866 by Drs. Judd, C. W. Rivers, W. H. Eames, H. E. Peebles, Isaiah Forbes, William N. Morrison, George A. Bowman, and others.

Dr. Judd was elected dean, a position he held for seven years. He was the first professor of the Institutes of Dental Science in this institution. The board of trustees of this institution, in recognition of his efforts in organizing

the college, conferred the degree of Doctor of Dental Surgery upon him in 1866.

He was of pronounced literary taste, and knowing the value of a dental journal as an educator, led him to take the initiative in organizing the "Missouri Dental Journal," of which he was the editor-in-chief, a position he occupied five years. He was assisted by Drs. Henry S. Chase and Edgar Park, in charge of the operative department, and William H. Eames and William N. Morrison, in charge of the mechanical department. This journal was resuscitated in 1884 as the "Archives of Dentistry."

Dr. Judd was a concise writer on dental topics and wrote many valuable contributions to our literature, many of which are worth reading to-day. Among them were papers on "Spontaneous Abrasion," "Alveolar Abscess," "Deciduous Teeth," "Dental Fissures," "Finishing Fillings, and The Histology of Dental Tissues," etc. He was a frequent contributor to the newspapers and wrote some descriptive poems of merit; one, published in a Chicago paper, was of high order, and was a description of a storm in the mountains.

The following is selected from his best poems, written for the pleasure it gave him, and never before published:

WHAT IS LIFE?

"Oh, what is Life? 'Tis but a dream
Which flits along the sea of Time—
A flickering light, a passing gleam,
A voiceless, formless pantomime.

"And as a dream sweeps o'er the mind
Leaving but feeble traces there,
So Life leaves but a track behind—
A footprint stamped upon the air.

"Oh, what is Life? 'Tis but a breath,
Anon, a breeze, a battling storm,
Subsiding, hushing, hushed in Death,
Dissolving without force or form.

"And like a breath, awhile it sweeps
Along Time's murmuring stream,
Then sinks to quietude and sleeps
The sleep that knows no dream.

“Oh, what is Life? A meteor hurled
From off the golden shore,
To wander once throughout the world,
Returning nevermore.

“And like a meteor’s brilliant glare
It lights the evening skies.
Then silently dissolves in air,
Falls to the earth and dies.

“Oh, what is Life? ’Tis but a spark
Struck from ethereal fire.
A single gleam where all was dark
A blazing funeral pyre.

“And like a spark it gleams, and, lo!
Its bright and glittering ray
Hath passed from earth and all below
To regions far away.

“Oh, what is Life? ’Tis but a thought
Sprung from the Eternal Mind,
And by the mighty Maker brought
To us and all mankind.

“And like a thought it passes by
Waits not for morn or even,
But heaves one longing, lingering sigh
And flies again to heaven.”

He also wrote an historical sketch on “The Battle of Nashville,” realistic in detail and vivid in description. Dr. Judd was very active in local, state, and national dental affairs, and was elevated to the highest honors. He was president of the American Dental Association, 1868-69, the Missouri State Dental Association, 1867-68, the St. Louis Dental Society, 1869, and a member of the American Medical Association, the St. Louis Medical Society, the St. Louis Academy of Sciences, the St. Louis Microscopical Society, honorary member of the California, Iowa, South District Society of New York, and the Illinois State Dental Association, which he was active in organizing and was a constant attendant, contributing to it frequent papers. At one time he was a member of the Illinois State Board of Dental Examiners, associated at the time with Drs. G. V. Black, George H. Cushing, C. A. Kitchen, and A. W. Harlan. These men, and Dr. M. S. Dean, of Chicago, were his especial friends in Illinois.

Dr. Judd became an Odd Fellow in 1847 at Ravenna, Ohio, and passed through the chairs of his lodge at Warsaw and was a representative to the Grand Lodge at Chicago, 1859. In politics he was a Republican. He was not a church man and had no direct religious affiliations, yet he was a God-fearing, righteous, and moral man of much dignity, yet full of subtle humor, loved and respected by those who knew him, especially by his professional confreres. He was fond of sport with rod and gun; and was also an ardent chess and billiard player.

He was married, March, 1853, to Miss Emily F. Hodgen, of Pittsfield, Illinois, a sister of the famous St. Louis surgeon, Dr. John T. Hodgen. Three children were born to them, a son, Frank, who died in infancy, and two daughters, Miss Ada M. Judd, and Mrs. Mary E. Smith, of Florida.

In 1880 Dr. Judd's health failed and he retired from practice and went to Colorado, where he was interested in some silver-mines. He soon after removed to Mason City, Iowa, thence to Upper Alton, where he spent his last days. He died of cancer of the stomach, May 20, 1890, aged seventy years, and was buried in the family burial lot at Pittsfield, Illinois.

Of broad, scholastic mind, natural abilities, zeal, and integrity. An eloquent impromptu speaker who never failed to interest his audience. A leader of men and an organizer of the things that have elevated and bettered his chosen calling. He devoted his professional life to the honor and advancement of his profession and with the credit of being foremost in organizing the first dental college and dental journal west of the Mississippi River, and of many good deeds as an active professional man and humanitarian of the Civil War, Homer Judd did not live in vain.

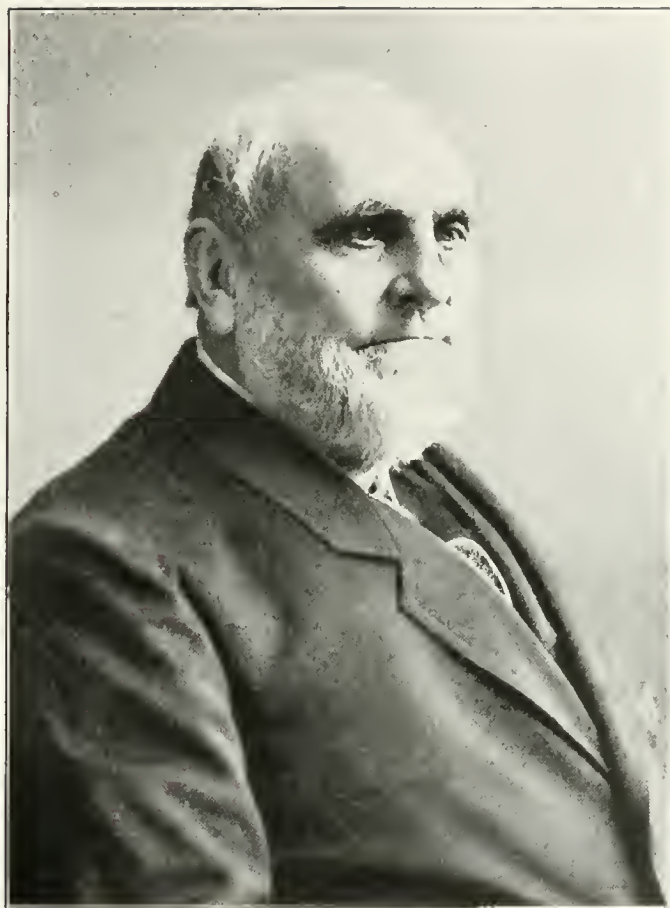
The facts contained in this sketch were obtained from Miss Ada M. Judd, Upper Alton, Ill., and Dr. A. H. Fuller, St. Louis, daughter and nephew, respectively, of the subject of this sketch, and from "Thomas Judd and His Descendants," published in 1856, by Sylvester Judd, of North Hampton, Mass.

WILLIAM HENRY MORGAN, M. D., D. D. S.

ORGANIZER OF THE DEPARTMENT OF DENTISTRY, VANDERBILT UNIVERSITY.

William Henry Morgan was born in Logan County, Kentucky, February 22, 1818. He was the son of Joseph and Elizabeth Morgan. His father was a veteran of the War of 1812, having fought under General Andrew Jackson at the battle of New Orleans. His grandfather was a colonel in the Revolutionary War, while his great-grandfather, previous to the Revolution, was a Lieutenant in the Company of Captain Van Swearingen, holding his commission from George III.

Young Morgan's mother died when he was six years old. In the main his early education was received at Sunday school, where he acquired the taste for reading. He was a stalwart youth and prided himself in his early years that swinging the old fashioned harvesting cradle, there were none who could leave him behind. His honored pride was to be the *best* in whatever he undertook. He was frugal in his habits and saved all the money he could earn from farm work and bought books to satisfy his desire for information. After saving a few hundred dollars accumulated by field labor and strictest economy, with a very imperfect education he commenced the study of dentistry at the Baltimore College of Dental Surgery, from which he graduated with the eighth class, March 1848. He located at Russellville, Ky., then a small town, with the idea of acquiring knowledge to conduct a practice. After staying here one year, he removed to Nashville, Tenn., where he entered partnership with T. D. Hamlin, D. D. S., the only other dentist at that time in Tennessee. This business association continued ten years, then Dr. Morgan entered upon individual practice. Later on he was associated in partnership with his oldest son, Henry William Morgan, M. D., D. D. S. For nearly fifty years, Dr. Morgan conducted a large, successful and exclusive dental practice, and was regarded as one of the foremost and skillful operators of the entire South. He early became identified with dental society work, and became a conspicuous figure in the dental association meeting, local, state and national. He was a member of the Nashville Dental Society, and its President July 26, 1867, the Tennessee State Dental Association was organized at Nashville and Dr.



W. Morgan

Morgan was elected its first President, President of the American Dental Association 1870, and again called to preside in 1882 during the absence of the President, Dr. W. H. Goddard. He was one of the foremost Southern dentists, who brought about the organization of the Southern Dental Association at Atlanta, Ga., July 29, 1869. He was temporarily vice-president of the organization, chairman of the Committee on Constitution and By-laws, and chairman of the first executive committee, as well as chairman of the Committee on Operative Dentistry, and one of the delegates elected for the society to attend the following meeting of the American Dental Association. He was elected president of the Southern Dental Association. He was also a member of the American Dental Convention.

He possessed advanced ideas in practice, and as an operator had few equals. He gave freely of his knowledge to his professional brothers. He was a born teacher and inspired many men to better things. As early as 1865 he was made trustee of the Ohio College of Dental Surgery and later was President of its Board of Trustees. He was the chief organizer and first Dean of the Department of Dentistry of the Vanderbilt University, organized in 1879.

He continued as an active head and as a teacher of this institution for more than twenty years. The dental department of Meharry Medical College, the first dental school ever established for colored people, was mainly instituted and directed by him. He was President of the Board of Trustees at the time of his death. He was an able speaker and strong debater, and a concise writer. Among the subjects he wrote upon were the "History of Dentistry," "Dental Education," "Operative Dentistry," etc.

He was identified with the M. E. Church South, and for many years a teacher and superintendent in the Sunday school of McKendree Church at Nashville. In politics he was a Democrat and served on the Indian Commission under President Cleveland, so conscientiously did he perform his duties on this commission, that he was re-appointed by President Harrison, but compelled to resign owing to failing health. In 1852 he married Miss Sarah A. Noel of Kentucky. To them were born one daughter, Mrs. C. H. Noyes of Warren, Pa., and three sons, Dr. Henry W., Jo B., and Garnett Morgan who survive him. He died at his home in Nashville, May 16, 1901, aged 83.

JAMES EDMUND GARRETSON, A. M., M. D., D. D. S.

ORIGINATOR OF THE SPECIALTY OF ORAL SURGERY.

James Edmund Garretson was born in Wilmington, Delaware, October 18, 1828, and commenced the study of dentistry with Dr. Thacher, of Wilmington, in 1850. He began practice in the neighborhood of Woodbury, N. J., and later came to Philadelphia, where he entered as a student in the Philadelphia College of Dental Surgery, the progenitor of the present Pennsylvania College of Dental Surgery. He received his dental degree, February 29th, 1856, and entered the practice of his profession in Philadelphia. Among his classmates was his brother-in-law, Dr. J. Foster Flagg, for many years his colleague in the faculty of the Philadelphia Dental College.

He began the study of medicine at the University of Pennsylvania, graduating from that institution as M. D., in 1859. The same year he was married to Beulah, a daughter of George Craft, of Upper Greenwich, N. J. At the organization of the Philadelphia Dental College in 1862, Dr. Garretson became a member of the faculty as professor of pathology and therapeutics but before delivering his course of lectures he resigned to accept the position made vacant by the resignation of the late Professor D. Hayes Agnew in the Philadelphia School of Anatomy, in which school Dr. Garretson had been a demonstrator for five years. It was this connection and his special liking for surgery that led him into surgical practice which he continued, with little interruption, for the remainder of his life.

It was through his efforts that a special branch of surgery was organized and became recognized as "oral surgery," the first specialty evolved from dentistry, Orthodontia being the second. He was subjected to some criticism at the time, as it was deemed by some to be an unnecessary division. This had its origin in a positive prejudice, at this period, against specialties in medicine. The question was frequently asked, "In what does oral surgery differ from general surgery?" Whether Dr. Garretson ever answered this query is not known, but with his skill he so impressed his individuality upon his work that oral surgery became a special branch of teaching and was adopted as part of the curriculum of the leading dental colleges of the United States. He con-



J. E. Garretson M.D.

tinued in charge of the school until 1864, when he gave up that position and entered the Philadelphia Dental College as professor of anatomy and surgery. During the war of the rebellion Dr. Garretson for a time was in active military hospital service. In 1869 he was appointed oral surgeon to the hospital of the University of Pennsylvania. In 1880 he became dean of the Philadelphia Dental College, which position he filled until his death.

In the especial field of his activities Dr. Garretson filled a unique place. He was the pioneer in a new department, i. e., Oral Surgery, and the creator of its technique. He brought to the practice of his lifework the skill and manual dexterity of the trained dentist, to which was added the broad culture and intimate knowledge of his subject required by the educated surgeon. With this educational equipment grafted upon his rich natural endowment of attractive characteristics, a combination resulted which easily accounts for his phenomenal success and wide reputation as a surgeon and as a teacher.

Dr. Garretson was a striking example of the self-made man. His love for his work, his faith in and respect for the possibilities of development in dentistry, and his ambition to secure for it the status and recognition it deserved bore abundant fruit in the example of success which he has left as a heritage to his profession.

He realized the crudity which characterized the method of performance of the earlier operations done upon the head, face, and jaws: he saw that the special training and many of the operative methods of the dentist were, with suitable modification, directly applicable to surgery within his selected territory. Grasping this great principle and putting it to thorough, practical test, he soon found that he had struck the keynote to success. The whole complexion of his operations, whether viewed as to their technique or as to the character of the results, differed essentially from the work done by any of his predecessors and the majority of his contemporaries. His work was distinctly conservative in character, always keeping in view the importance of the cosmetic feature of his results, and as a consequence his operations were designed and done with a distinct purpose to avoid to the utmost extent permanent mutilation.

It was his custom as far as possible in operations upon the jaws to perform them within the mouth in order to avoid external incisions, and he carried the development of this principle to the extent that he frequently operated for the removal of the entire superior maxilla through the mouth without external incision. His conservatism was further manifested in respect to the several tissues of the oral cavity, it being a cardinal principle with him never to remove healthy tissue that might in any degree help to bring about a normal restora-

tion of function within the territory of operation. His operations upon the inferior maxilla always involved this feature as far as conditions permitted. Hence it was his custom to leave a thin basilar rim of bone and periosteum for inducing the reformation of a maxillary ridge to be utilized as a base of support for an artificial denture.

His success in operations of this character is in strong contrast with the results shown by the general surgeon who lacks the familiarity with dental methods and requirements possessed by Dr. Garretson.

He was the first surgeon to successfully use the Bonwill dental engine in surgical operations.

He at once appreciated the applicability of this dento-surgical engine in bone operations. This was the natural consequence of his dental training. He kept it in constant service, and its efficiency is everywhere reflected in the superior results attained by him in his operations, as well as in the performance of certain operations, especially those within the brain case, that would be impossible of performance without it. The practical development of the surgical uses of the engine is inseparably connected with the record of his surgical work. Dr. Atkinson often said "Garretson was the greatest oral surgeon of the world," surely he had no superiors.

The permanent record of his surgical work is embodied in his greatest literary work, Garretson's "System of Oral Surgery." This work is a monument of labor and however much some may regard it unnecessarily voluminous it remained for years the only one of its kind. This book passed through six editions, the first appearing in 1869 and the last in 1895.

It is in the last edition of this great work that the culmination of his endeavor to place dental surgery upon a parity with the officially recognized medical specialties is seen. The former editions exhibit the gradual evolution of a professional condition which began in toleration and has since grown into a just recognition.

Dr. Garretson was a contributor not only to the literature of his profession, but to general literature as well. The earliest of his writings was a contribution upon "Dental Hygiene," and one upon the "Ether Question," published in the "Dental News Letter" in 1855. His writings consisted of a number of separate book publications, as well as of contributions to periodical literature. There appeared in the "Dental Cosmos" upward of one hundred articles from his pen besides a large number of unsigned communications published as "Hints and Queries."

Apart from his "System of Oral Surgery," he found sufficient leisure to

write and publish works as follows: "Brushland," "Hours with John Darby," "Thinking and Thinkers," "Odd Hours of a Physician," "Nineteenth Century Sense," and "Man and His World." These added to his reputation as a thinker and philosophical writer. These were written under the *nom de plume* of John Darby.

His lectures on philosophical subjects, delivered at the college, will be remembered by those who heard them in their entirety, as containing some of the deepest thoughts conveyed in a most entertaining manner and with the least possible attempt at superiority.

His love of the philosophy of all ages was deep and profound. His studies in these directions tinged all his writings and addresses, and led many to turn away from them as peculiar; but they were only peculiar in that they were out of the common ruts of thought. To those who appreciated something more than mere platitudes they touched a responsive chord. Fluent as a speaker, his lectures and addresses had a high grade oratorical quality.

His splendid tribute to the work of Dr. Horace Wells at the fiftieth anniversary of his discovery of anaesthesia at the Memorial Celebration in Philadelphia, December 11, 1894, is well worth the reading.

He died at his home at Lansdown, near Philadelphia, October 26, 1895. His remains were incinerated at the Germantown Crematory, and interred at the Friends' burying ground in Upper Darby, Dr. Garretson being a member of that faith. He left a widow and two daughters.

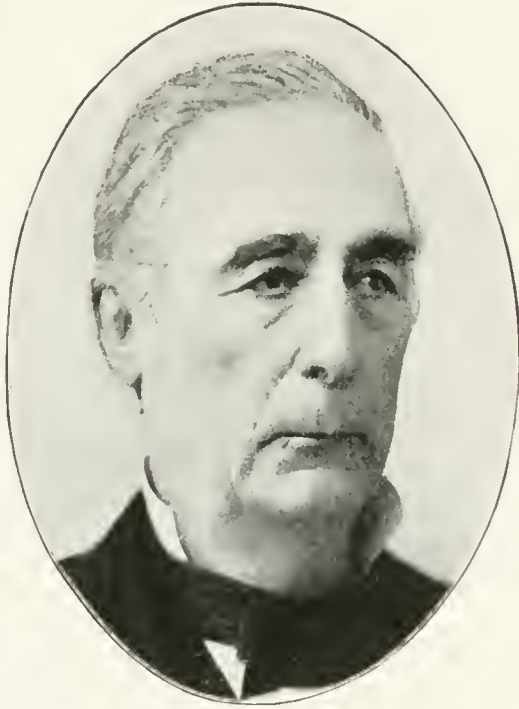
JEREMIAH HAYHURST, D. D. S.

ORGANIZER AND FIRST PRESIDENT OF THE NEW JERSEY STATE DENTAL SOCIETY
AND DENTAL HISTORIAN.

Jeremiah Hayhurst was born September 25, 1819, at Middletown Township, Bucks County, Pa. He died at Lambertville, N. J., March 22, 1899. The funeral ceremony was at his late residence and in accordance with the custom of the Society of Friends of which he was a member. His body was interred in the Friends' burying ground at Solebury, Bucks County, Pa. His original ancestor in this country was Cithbert Hayhurst, a minister of the Society of Friends in England, who suffered persecution there and came to this country in 1682 and his name is found in the list of passengers of the ship "Welcome" on which William Penn came. He took up a tract of land near what is now known as Langhorne, Bucks County, Pa., under a warrant from William Penn, but died before his title was confirmed, and the title to the land was confirmed to his sons.

Dr. Hayhurst was a son of Thomas and Martha Crosdale Hayhurst and as a boy worked with his father at the pottery business at Camden, N. J., and Wilmington, Del., at the latter place his father failed in business. He was perhaps not a very shrewd business man and allowed himself to be taken advantage of. He failed to make a business successful and his property was sacrificed to pay his debts; and while there is not a charge of intentional dishonesty against him, yet under the harsh rules which prevailed at that time of the Society of Friends, of which he was a member, he was turned out of meeting because he was unable to pay his debts in full.

Young Jeremiah spent some years as a farmer's boy bound to Richard Barnard, a farmer in Chester County, Pa., afterwards went to school at Poughkeepsie, N. Y., where he paid for his tuition by his labor and afterwards for some time continued as a teacher in the same school. When he started to school at Poughkeepsie his total cash capital was one silver Spanish milled dollar. He walked most of the way and secured conveyance to Poughkeepsie on a boat from New York up the Hudson river. About 1840 he was engaged with his father in conducting a select school at West Chester, Pa. He after-



J. Hay Harris

wards kept a boarding school by himself at Kennett Square, Pa. The school was for a time quite successful and he was fond of referring to several of his pupils who attained some prominence, among them being Bayard Taylor, the author.

While engaged here he met and married Mary E. Forwood, who survived him, as did a daughter, Mrs. Martha M. Goodfellow and a son, Walter F., counsellor-at-law of Lambertville, N. J.

Soon after his marriage he commenced the study of dentistry at Kennett Square in the office of Dr. John Anderson, who had a reputation as a skilled operator, and completed his course, received the degree of Doctor of Dental Surgery at the Philadelphia College of Dental Surgery, at its third annual commencement, February 28, 1855. He was at that time a man of mechanical skill and stood high in his profession. Being a poor man he worked his way through school by becoming one of the clinical instructors. His first practice was obtained by traveling from place to place. He made with his own hands most of the instruments he used in practice, his own tooth body, taking the spar from the adjacent field, did his own carving, reduced his metals, and did everything from the beginning. All the Mexican and French gold pieces obtainable were then hoarded for dental use.

For a short time he was located in Philadelphia and became a clinical instructor in the college where he graduated. Later, March 24, 1857, he was elected Professor of Principles of Dental Surgery and served during the session of 1857-8 resigning when the session closed, to subsequently locate at Attleborough (now Langhorne) Pa., where he practiced his profession and managed a drug store. He was one of the organizers of the Bucks County Dental Association, organized at Doylestown, Pa., June 7, 1869, and a member of its first Executive Committee. In 1872 he moved to Lambertville, N. J., where he bought the practice of Dr. A. Homer Trego. Here he resided to the time of his death and enjoyed a successful practice.

He was one of the organizers of the New Jersey State Dental Society at Trenton, October 25, 1870, and its first president and member of the first State Board of Dental Examiners, organized 1873, and for years president of the same and state prosecutor. He represented the society in the National Association of Dental Examiners and the American Dental Association meetings. In 1892 he prepared at the request of the New Jersey State Dental Society a history of Dentistry for the World's Dental Congress at the Columbian Exposition Chicago, and delivered an address on the subject before that body. A summary of his address appears in the proceedings of the Congress. The complete work, however regrettably, has never been published.

He was an active member of the Society of Friends and was for some years a recommended minister of that society and at all times a most regular attendant of these meetings for business or worship.

He was for twenty years, with a short interval, a Justice of the Peace of his country, for many years a director of the Lambertville National Bank, the Centennial Building and Loan Association and other public institutions.

He was talented as a mathematician and linguist. He was an active Master and Royal Arch Mason and very proficient in the work.

As a young man he had the reputation of being a fluent speaker and his services were in local demand as a speaker upon literary subjects, temperance and other reforms and to some degrees as a political speaker. He was a fluent speaker and took part in meetings held on Sunday afternoons at the Auditorium, Asbury Park, N. J., at which social, religious, political, scientific and other popular subjects were discussed. These meetings of a religious character, were quite undenominational and speakers of note made addresses, as did Dr. Hayhurst, who never failed to hold the audience's attention.

Originally an abolitionist he took an active part in anti-slavery agitation and in the Republican campaigns from the time of John C. Fremont until his failing health and faculties interfered.

He was prominent in his profession, the journals of the proceedings of the New Jersey State Dental Society contained something from his lips or pen nearly every year. His latest contribution being a series of papers on the history of dentistry of much merit.

JOHN ROACH SPOONER, M. D.

DISCOVERER OF THE USE OF ARSENIC FOR PULP DEVITALIZATION AND EARLY
EXPERIMENTER IN PORCELAIN.

John Roach Spooner, a son of Paul and Deborah White Spooner, was born January 14, 1794, at Heath, Massachusetts. Paul Spooner, the father, was a house carpenter and joiner by trade.

The original of the Spooner family came from England, locating at the Plymouth Colony about 1637. He was a redemptioner, a term applied to emigrants brought over without prepayment of passage. On their arrival they were sold at auction for the shortest term of years for which any one would take them and pay the passage money. He died in 1684, leaving nine children of which Paul was of the fourth generation.

John Roach spent his boyhood days in Orwell, Vermont, a town to which his parents moved soon after his birth. After a few terms in the district school, being studiously inclined, he determined to educate himself for a professional life. When quite young he devoted himself to a thorough study of the classics. These he soon supplemented with scientific studies. Finding a delight in scientific investigation he naturally drifted into the study of medicine. Of delicate constitution, the close confinement to his studies soon impaired his health, and he was compelled to relinquish his design of entering upon the practice of medicine. About this time his attention was attracted to dentistry and he began the study about 1815, with a Dr. Blake, the pursuit of which was destined to yield him a great credit and make his life and influence of much value to his fellow-men. He quickly saw its importance, and the opportunity dentistry afforded, so putting aside his other studies he earnestly devoted his entire energies to preparing himself for this calling. He was one of seven brothers, all of whom became dentists.

The subject of our sketch first began practice in Western New York; meeting with poor success, he soon left that part of the country and in 1830 went to Montreal, Canada, where he settled, and had a hard struggle, the profession being at that period but little known to the laity of that city, as the Canadians did not welcome novelties or strangers from the United States. He was the



John Roach Spooner.

first man to really practice dentistry as a distinct profession in the Province of Quebec. While making his way slowly and laboriously, a happy thought struck him. Porcelain artificial teeth had not as yet come into general use in America; foreseeing their great usefulness and the advantage to the person who should so far improve them that they would displace those of bone and ivory, he began experiments with a view to engaging in their manufacture. His purpose was to discover a composition which, when properly molded, would bear a close resemblance to the natural teeth in color, and afford the requisite masticating power. With great perseverance he labored, encountering many discouraging failures. He at last, however, succeeded in combining incorruptible mineral substances that produced, when baked, excellent specimens in strength and which possessed, when tested, the necessary qualities. Dentists and physicians recognized the merit of his experiments and by introducing these teeth in their practice, they reaped the fruits of his labors. This established his reputation, and he soon acquired a large practice which he retained for many years.

Dr. Shearjashub Spooner in his book, "The Guide to Sound Teeth," page 205, speaking of his brother John R. Spooner's teeth, says: "They had not been offered on the market for general use, the process for making them was so tedious."

Dr. Spooner being a man of great energy and warmly attached to his profession, exerted a great influence for good upon the dental profession in Canada. As a practitioner, he was remarkably successful and enjoyed to an unusual degree the confidence and affection of his patients. He was of an amiable disposition, generous and impulsive, doing a great deal of good to his profession and to humanity in general.

He is credited with introducing the use of arsenous acid for devitalizing the dental pulp in the place of astringents and escharotics previously used for this purpose, thereby very greatly advancing the usefulness of dental science. This will ever remain his best gift to the dental profession, and for this he should be remembered and honored.

John Roach Spooner was the elder brother and preceptor of Dr. Shearjashub Spooner, a talented writer of the profession who contributed to our early literature his "Guide to Sound Teeth, or a Popular Treatise on the Teeth," published in New York in 1836 (second edition in 1838). He also published a small work on "The Care and Preservation of the Teeth." In 1838 he published an essay on "The Art and Manufacture of Mineral, Porcelain, or Incorruptible Teeth." In 1839 he published a treatise on "Surgical and Mechanical Dentistry." He was also talented as a man of letters. Amongst his

contributions were American edition of "Boydell's illustrations of Shakespeare," "Biographical and Critical Dictionary of Painters, Engravers, Sculptors, and Architects." "Anecdotes on Painters, Engravers, Sculptors, Architects, and Curiosity of Art." He also published a superbly embellished and illustrated edition of the New Testament illustrated by engravings from designs of the best Italian artists. In his "Guide to Sound Teeth, or a popular Treatise of the Teeth" page 115, Dr. Spooner says: "The nerves of the teeth may be certainly and effectually destroyed, with little or no pain to the patient, and without the least danger, by means of a little arsenous acid (arsenic, ratsbane) applied to the nerve. We claim for our brother, Dr. J. R. Spooner, of Montreal, the credit of this invaluable discovery, and for ourselves no small share of credit for thus frankly laying it before the dental profession and the public." He claims that he and J. R. Spooner had used it a long time, and that it had been the means of restoring to usefulness many teeth that would without it have been extracted. He closes his remarks upon the pulp treatment with the following paragraph: "If the nerve of a tooth be much exposed, we think it much the better practice to destroy it at once by means of the arsenic, and then to plug the tooth securely. All other methods of treatment are often abortive, and, if successful, the nerve often dies away gradually."

Dr. Chapin A. Harris, in Harris's Dental Dictionary, says: "Dr. John R. Spooner was the first person to employ arsenous acid to destroy the nerve of teeth: his object at first in using it was to find a substance that would act chemically upon the teeth."

He used a mixture of three parts arsenous acid and one part acetate of morphia, saying, "The twentieth of a grain of arsenic is quite enough to destroy the nerve of any tooth," greatly preferring this preparation to the older remedies such as nitrate of silver, nitric acid, or the actual cautery.

Little record is to be found of contributions by John Roach Spooner to dental literature. It seems that his brother, S. Spooner, was the writer of the family. However, Dr. J. R. Spooner must have been a deep thinker and an assiduous student to work out some of the problems he solved. As a man he stood high in the community in which he lived. He was a member of the Montreal Dental Society and of the American Society of Dental Surgeons.

He married, May 10, 1822, Miss Anna Ridout, who died February 14, 1832. He was again married May 1, 1833, to Miss Maria Baldwin. To them was born one child, Maria Jane, who lived only two years.

In the winter of 1837 he was attacked by a severe cold, which wearing on his delicate constitution soon developed into serious lung trouble. In the fall of 1837, by the advice of his physician, accompanied by his wife, he left Can-

ada for the island of Barbadoes, West Indies, hoping that its genial climate would soon restore his health. On arriving, he made the acquaintance of a wealthy resident of the island, who insisted upon his making his home with him. His health proved so completely undermined that he died April 20, 1838, at the house of his friend, surrounded by every comfort that wealth could provide, and was buried on the island. His widow, on returning to New York, learned that her infant child which had been left behind in Canada had died during her absence and that she was doubly bereaved.

John Roach Spooner deserves a place in dental history as one who discovered that valuable agent, arsenic, for pulp devitalization, and also for his early research and experiment in perfecting the usefulness of porcelain teeth.

ANDREW MACBETH LESLIE, D. D. S.

PIONEER EDITOR AND DENTAL MANUFACTURER OF MISSOURI AND AN ACTIVE
DENTAL SOCIETY ORGANIZER.

Andrew Macbeth Leslie was born in 1815, at Edinburgh, Scotland. He was the son of John and Margaret Scott Leslie, both natives of the village of Stromness, Orkney Islands. Andrew and his brother James Leslie (who died February 9, 1905, at Cincinnati, where for many years he was prominent as a dental dealer and manufacturer of gold foils), were both educated in Edinburgh, where their parents resided, their father being a straw bonnet maker of that city. In 1834 the boys came to America with their mother, locating in New York City. Soon after Andrew became an apprentice of Joseph Haynes, a pioneer gold beater of New York City, and began working at this trade in New York City to support the family, his father having died in his youth. Soon after this they became acquainted with the Parmley family, who were all prominent pioneer dentists. Dr. Eleazer Parmley was their special friend and their Sunday-school teacher, and greatly encouraged them, not only by using their gold exclusively but also by much encouraging advice.

In 1837 Andrew began business on his own account in New York City, and taught the business to his brother James. In 1838 the Leslie boys moved to Cincinnati and became the pioneer gold beaters of the entire western country, their foils being recognized as the best obtainable, and very "cohesive." Prior to this there were only two standard foils on the market, i. e., the product of Joseph Haynes, of New York, and Marcus Bull of Philadelphia. James Leslie claimed to be the first to discover the cohesive properties of gold foil in 1839. A number of others, however, such as W. H. Dwinelle, Amos Westcott, and Robert Arthur also made similar claims.

However, Andrew M. Leslie says, in the "American Journal of Dental Science," Vol. V, page 239, regarding the welding properties of gold foil, "we must claim to having, in 1854, first brought before the profession the fact that gold in a cold state would weld." At the annual meeting of the Mississippi Valley Association of Dental Surgeons Dr. James Taylor speaks of using the adhesive



Andrew M. Leslie

foil made by James Leslie of Cincinnati. He also showed a finger ring made by Dr. A. M. Leslie, from scraps of his adhesive foil, without melting or soldering the same together. These pieces of foil were held together by the adhesive property alone in the gold, the ring having been constantly worn for one year. Dr. A. M. Leslie also alludes to his brother and himself as the discoverers of the adhesive property of gold foil, in a paper entitled, "A Report of Dental Progress," published in the "American Dental Journal," Vol. V, page 239, 1855.

In 1842 Andrew entered actively into the study of dentistry. In 1845 Dr. James Taylor and his associates organized the Ohio College of Dental Surgery and Andrew matriculated the first year of the college's existence from which institution he received his degree of Doctor of Dental Surgery, in 1847. Andrew Leslie was ever an earnest student, especially so during his college course; he smuggled a skeleton into the garret of his home and spent his evenings in assiduously going over his anatomy and physiology. After he graduated he immediately opened an office in Cincinnati where he had a reputation as a skillful dentist. Following his graduation he was appointed Demonstrator of Mechanical Dentistry and Metallurgy, in recognition of his skill and knowledge in that subject. He held this appointment until 1850 when he was appointed Professor of Mechanical Dentistry and Metallurgy.

In 1853 after he had been practicing for twelve years, he became subject to attacks of severe headaches so that he had to give up practice for weeks, and he decided that he must change his daily toil for something more active. He made a visit to St. Louis and met with a genial group of eminent dentists. They were freer from that distrust and those small suspicions that prevailed so much among dentists fifty years ago. He met with such men as Forbes, Spalding, Clark, Peebles, Judd, Barron, Morrison, McKellops and Comstock. They took an interest in him and bid him welcome to their midst, and his desire for some change suggesting to him to come to St. Louis and open a dental depot.

He finally located in St. Louis in 1856, where he established the first dental depot west of the Mississippi river; it was called the Mississippi Valley Dental Depot, and was the predecessor of the present St. Louis Dental Manufacturing Co. Dr. Leslie was instrumental in materially developing and advancing dentistry in that section. Although a manufacturer and dealer, he lost none of his love for the profession or his sympathy for its practitioners, and materially aided in elevating and educating its members. He was a man of active and vigorous mind and indomitable energy, which aided him materially in accomplish-

ing many things he tried. He made for himself a reputation as organizer. He was active in the organization of the St. Louis Dental Society and was elected its first secretary. The preliminary meeting of organization was held December 11th, 1856. The society met the first Tuesday in each month at 79 Market St. (between Third and Fourth streets), over Dr. Leslie's dental depot where rooms were rented and furnished.

At those early meetings they had the diagram of a jaw with the teeth and in every tooth a cavity or two; and each member was requested to demonstrate just how he would fill it. To record their views it was suggested that a dental journal be issued, recording their opinions and methods of operating.

Dr. Leslie was also active in the organization of the Missouri State Dental Association, July 31, 1865, and was elected the first treasurer of the Association. It was upon Leslie's motion at its second meeting that a committee was appointed to organize a dental college from which eventually resulted the organization of the Missouri Dental College, organized September 24, 1866. At this meeting Dr. Leslie was made chairman of a committee, consisting of Drs. Comstock, Eames, McCoy and Anderson, appointed to take in consideration the subject of dental legislative enactments relative to the protection of the public and profession against quackery. Besides being active in the St. Louis Society and Missouri State Dental Association, Dr. Leslie, before his coming to St. Louis, was active in the Mississippi Valley Association of Dental Surgeons of which he was one of the organizers in 1844. He was the third vice-president in 1848-50, and he was recording secretary of this Association in 1852-3-4-5. Before this association he read a number of very valuable essays, principally on metallurgy, mechanical dentistry and gold foils for filling. He had a thorough experimental knowledge of metals and was one of the authorities of the country on that subject.

When in practice he desired if possible to have a gold plate on which he could use pure gold as a solder, instead of the common article then and still used on gold work. To do this he alloyed his plate with a small quantity of platinum, thereby increasing the melting point of the plate above that of pure gold, and it was a success, and in those days of gold plate work the plates were much cleaner in the mouth. His only objection was that the plates had a slight bluish tinge. He invented a number of dental instruments of value and improved a number then in use, one of special value, the *Leslie wisdom tooth forcep*.

Prior to his coming to St. Louis he had some editorial experience, as he was appointed one of the editing committee of the "Dental Register of the

West," succeeding Dr. B. B. Brown, of St. Louis, on that committee. This journal at this time was published by the Mississippi Valley Association of Dental Surgeons, and edited by Drs. Jonathan Taft and George Watt. After locating in St. Louis Dr. Leslie took upon himself the responsibility of publisher and editor of the "American Dental Review," issued quarterly, and sent forth the first number February 7, 1858. It soon had a reasonably large circulation.

It was instructive to the profession at large and soon became popular. It was replete with valuable matter, reviews and theories that appeared new, being one of the first to honor a good thing, and exposing all shams. Dr. Leslie loved to honor any man that gave the profession a new or good improvement.

This sense of justice was acute in this phase of his dental ethics. His papers on metallurgy and one on mechanical dentistry under the nom-de-plume of *Barron Von Hiem* are full of valuable instruction even for twentieth century professional teachers.

Owing to the trying times of war in 1860 he gave up the publication of the "Dental Review," but would issue a paper occasionally. The Missouri Dental College, chartered September 16, 1866, was organized partly through the active efforts of Dr. Leslie, who was one of the incorporators to whom the charter was granted. He was a member and secretary of the first board of trustees, and one of the most earnest advocates of the institution in its infancy.

Andrew M. Leslie was married to Miss Mary Andrews of New York, May 17, 1838. To them were born nine children, Mary Scott, (who married Dr. Charles Knowler, a dental practitioner of St. Louis), Andrew M. Leslie, Edwin Goldsmith Leslie, Arthur James Leslie, and Ada Bryon (now Mrs. William Keating), and Katy, and three who died in infancy. A. M. Leslie believed he had a mission on earth, that of doing good and bettering the calling he spent his life in improving. He was quiet in his disposition and taste, charitable to an extremity and a very religious man. He was beloved by those who honored truth, morality, integrity and ability and greatly esteemed by his professional and business associates. He died of cholera at Memphis, Tenn., where he had gone to close up a branch of his dental depot, November 30, 1865, aged 50 years. His death was a shock to his friends and family, and most kindly did the profession meet in St. Louis expressing their deep sorrow on the death of their "beloved Leslie." He was buried in Spring Grove Cemetery, Cincinnati.

The principal facts contained in this sketch were obtained from Dr. James Leslie, Cincinnati, a brother, and Mrs. Mary S. Knowler, St. Louis, a daughter of the subject of this sketch.

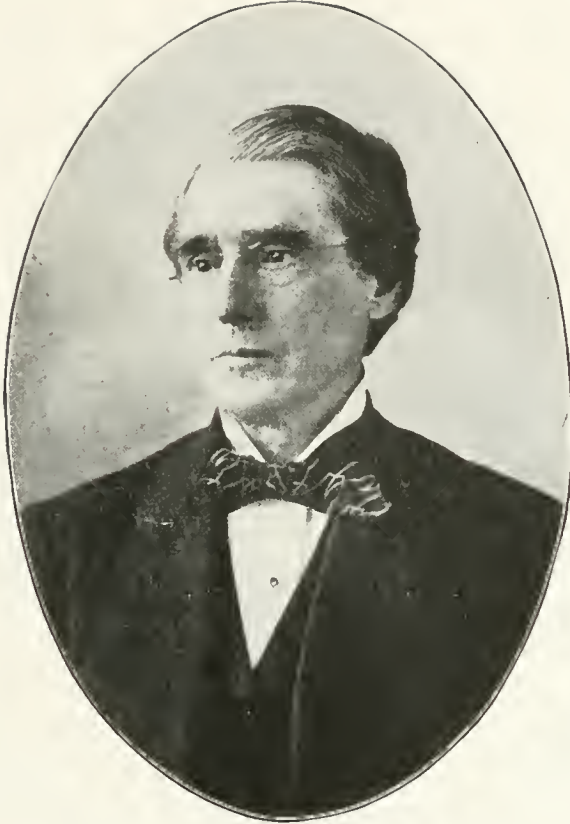
MASON STILLMAN DEAN, D. D. S.

A PROMINENT PIONEER OF ILLINOIS.

Dr. Dean was born in Pittsfield, Vermont. He obtained the foundation of his education in the public schools and higher academies of his native State, and early commenced teaching. In 1843 he studied medicine at Ogdensburg, N. Y., and subsequently dentistry with Dr. D. C. Ambler, a noted dentist; commenced dental practice in Dundas, Canada, removing from there to Milan, Ohio, where he remained in practice till 1852, when he went to Marshall, Mich., continuing there until 1864, when he removed to Chicago, where he remained until his death.

Dr. Dean took a prominent part in all that concerned the advancement of his profession, and received unsought the highest offices in City, State and National Dental Associations. He was one of the organizers of the Illinois State Dental Society, of which he was made President in 1869 and was twice elected President of the Chicago Dental Society. In 1873 he was corresponding Secretary of the American Dental Convention. He served for five years as Recording Secretary and Chairman of the Publication Committee of the American Dental Association, and in 1875, was elected President of that body. His literary attainments were far above the average. His contributions to the American Dental Association, to the Illinois State Dental Society, and especially his translation of Legros and Magitot's work on "The Dental Follicle," embodying his own original investigations, are valuable additions to the permanent literature of the profession. Amongst his writings are found the following subjects, i. e., Alveolar Abscess, Calcific Elements, Dental Literature, Development of Enamel Epithelia, Dental Germs, Filling Crown Cavities, Complicated Fillings, Dental Physiology, Pulp Cavities, etc. The Ohio College of Dental Surgery conferred the honorary degree of D. D. S. upon him in 1878.

As a man he was possessed of a keen sense of justice, and was strictly upright in all his dealings and had the confidence and good will of all who



Wm. D. Can

knew him. He was a most charming man in every way. His was a beautiful life and his character was above reproach in every respect. It was a benediction to any one who had the opportunity to spend a social hour with him. Dr. Dean never married.

He was found dead in his bed, Jan. 28, 1882. His funeral services were held in the residence of Dr. J. N. Crouse, the Chicago Dental Society attending in a body. His remains were buried at Mystic, Conn.

Facts in this sketch from obituary sketch in the "Dental Cosmos," Vol. XXLV, January, 1882, p. 158.

SANFORD CHRISTIE BARNUM, D. D. S.

THE PROFESSION'S BENEFACTOR. THE ORIGINATOR OF THE RUBBER DAM.

Sanford Christie Barnum, son of George W. and Caroline Griswold (Clowes) Barnum, was born in Oakland Valley, Sullivan County, New York, August 24, 1838.

He obtained his early education at the public and private schools, and at the Monticello Academy, a well known private educational institution of that time. In 1858, at the age of eighteen, he entered the office of his uncle, Dr. Joseph Clowes, of New York, as a dental student, and four years later commenced practice at Monticello, New York. Not satisfied with his limited knowledge of the science of his profession he returned to New York and attended two courses at the New York College of Dentistry, from which he graduated December 2, 1868, with the degree of Doctor of Dental Surgery, being one of the first graduates.

His professional work, both operative and prosthetic, early earned for him an enviable reputation. After his graduation he opened offices in his uncle's house in New York City, where he soon acquired a lucrative practice. It was, however, during his residence at Monticello in 1862, that he conceived the idea and made practical the Rubber Dam in dental operations.¹

He used it first in the mouth of a patient, Mr. R. C. Benedict, at Monticello. When he came to New York in 1864 to practice with his uncle, Dr. Clowes, to whom he demonstrated his discovery, and who quickly saw the great advantage of the dam, he requested the youthful Barnum to present it to the profession as a gift. This advice was seconded by another close friend, Dr. John Allen.

Barnum was of an open generous nature and possessed the highest professional ideals; he decided to forego the opportunity of making a fortune, which his highly useful invention afforded, and presented it as a free gift to

¹ "Barnum's Rubber Dam" is referred to as an excellent idea by Dr. G. S. Lati-mer, "Dental Cosmos," Vol. VI, August, 1864, p. 12. This is the first record, but it seems to have been known before, to New York dentists.



S. C. Barnum

the profession. The profession was quick to recognize the value of the invention and his donation gave him a world-wide reputation. He was presented with testimonials as tokens of appreciation by various dental societies.

At a meeting of the American Dental Association held in Nashville, Tenn., August, 1870, the following Preamble and Resolution was unanimously adopted:

Whereas, In view of the fact that Dr. Sanford C. Barnum of New York has devised and presented to the Dental Profession the best method of protecting cavities against moisture during the operation of filling teeth. And in testimony of its highest appreciation of this valuable improvement.

Resolved, That the thanks of the American Dental Association be and hereby are tendered to Dr. Sanford C. Barnum for the invention, perfection, introduction, and donation of the Rubber Dam to the Dental Profession.

IRA A. SALMON,

Cor. Sec. American Dental Association.

In the same year, 1870, he was presented by the American Dental Association with a large gold medal "In appreciation of the great value of his invention of the Rubber Dam, and of the true professional spirit in which it was given to the world." He was also presented with a handsome hunting case gold watch and heavy gold chain, the former of which bears the following inscription:

"Presented to Doctor Sanford C. Barnum by his professional friends for his valuable gift to the profession 'The Rubber Dam.'"

In 1875 Dr. Barnum was presented with a jeweled gold medal surrounded by a beautiful olive branch wreath in gold and attached to a brooch set with gold bearing quartz by the California State Dental Association.

Another token of appreciation was a silver mounted album containing the portraits of twenty-two European dentists, bearing the following inscription:

"The American Dental Society of Europe to Dr. S. C. Barnum in token of their appreciation of the Rubber Dam, 1876."

He remained with Dr. Clowes until 1868, then left him and practiced for himself until ill health obliged him to retire.

During the last ten years of his practice he was afflicted with chronic meningitis, the excruciating pains of which were borne with a resignation so perfect that none but his most intimate friends knew of his suffering. His disease was not properly diagnosed, and its true nature was only revealed by a

post-mortem examination, so that he was precluded from a measure of relief which a knowledge of his difficulty might have brought him.

The last two years of his life were attended with such extreme suffering that he was obliged to give up the practice of his profession, and at his father's home in Monticello, New York, await his end with such fortitude as he could summon. Notwithstanding the seat of his disease was in close proximity to the brain, his mind was always clear and he cherished to the last the happiest and the most pleasant recollections of his professional career and the multitude of his associates who had been so just in according to him honors commensurate with his work. During his last illness he was greatly worried by jealous rivals who claimed priority of invention, which was not proven. Another incident of his last days was the report started by some busy-body that he was financially embarrassed and asked each member of the profession to mail him a dollar. This was painful to Barnum and in a card he feelingly contradicted it and returned the money whenever he could.

Dr. Barnum never married. He died in Monticello, New York, December 24, 1885, at his father's residence, aged 47 years and 4 months and is buried in St. John's Cemetery, Monticello.

He was a member of the Dental Society of the State of New York, the First District Dental Society and various local societies. He also was a member of the First Division, Third Brigade of the Seventh Regiment, N. G. S. N. Y. and received his honorable discharge in 1873. In religious belief he was a Universalist, being an attendant of Dr. Chapin's Church. After Dr. Chapin's death, he worshiped with Dr. Pullman for whom he had a strong personal attachment.

Dr. Barnum acquired a good practice and was a thorough, faithful and excellent operator; of a genial, happy disposition; beloved by all who knew him, earnest and straightforward in all relations of life.

To his credit be it said he generously gave his discovery "The Rubber Dam," and he will ever be known as the profession's benefactor, who made it possible "to govern the tide and command it to go hence that we may approach the wreck on the beach and repair the breaks in the hull that the ship may continue to sail on its mission of usefulness."

The facts contained in this sketch were obtained from Dr. Barnum's friends: Dr. F. Hasbrouck, New York City; Mr. George Elliot Bennett, Monticello, N. Y., and his cousin, Mrs. David E. Lain, Whatcom, Washington.

MARSHALL HICKMAN WEBB, D. D. S.

“This hand was made to handle naught but gold.”

The angels must have smiled and the sun been shining when to Richard and Margaret Webb, at Marlborough, Chester Co., Pennsylvania, October 28, 1844, was born a son, who was christened Marshall Hickman Webb. He spent an uneventful boyhood in his native town, receiving his elementary education at the village public school, giving evidence now and again, however, of the talent that later opened to him a distinguished career.

Richard, the father, was a poor, but eminently respectable and skillful carpenter and cabinet maker, and much of his ingenuity was inherited by young Marshall, who was continually at work experimenting with his father's tools.

At the age of sixteen years, he had made ten violins, carving the bodies making his own strings and stringing the bows by slyly filehing the hairs from the tails of neighboring farmers' white horses. Dr. William C. Speakman, Wilmington, Del., relates the following story of Webb's boyhood: "One Sunday, many years ago, Jonathan K. Taylor, master and principal of the Coatesville Academy, with a Mr. Allen Speakman, drove to Fallowfield. While crossing a small brook (Buck Run), Mr. Taylor's observing eye caught sight of a mechanical toy in motion on the bank. They stopped to investigate the contrivance and found it to be a platform upon which two images, marvelously wrought, and painted dolls, were dancing, the motor power being a small water wheel under a dam of stone, a cord belt connecting the two by a series of pulleys.

"Mr. Taylor was struck by the ingenuity displayed and kept inquiring, after he reached the Fallowfield farm, who it was that possessed such mechanical talent. He was told that it was Marshall Webb. He manifested such an interest that he was taken down the road to the Webb home to see little 'Marsh'—a tow-headed youngster, exceedingly reticent—who was brought forth. After considerable persuasion on Mr. Taylor's part, young Marshall produced what his father called several 'other gim-cracks' of his invention. Mr. Taylor was greatly interested in this boy genius and remarked that he deserved to be



Marshall W. Webb

encouraged. 'If I had him at Coatesville, I would give him a winter's schooling.' This proposition was accepted by Marshall's father.

"Mr. Taylor took a great interest in the boy and frequently asked him what he would like to be when a man. The boy did not have a bent toward any particular calling, so Mr. Taylor, at odd times, took him about with him. One day they visited the laboratory of Dr. Frank Hickman, who was practicing dentistry at Coatesville, Pa., at that time, and who knew of young Webb's mechanical efforts, and was interested in him. At Dr. Hickman's solicitation, he entered his office as a student."

The term of pupilage began early in 1861. During this time he continued his general education, under the tutorage of Professor Jonathan K. Taylor, principal of the Chester Valley Academy.

Webb made rapid advancement, and showed marked progress and ability in his professional and academical studies. On completing his apprenticeship with Dr. Hickman, he entered the Philadelphia Dental College and graduated March 1, 1867, immediately beginning his professional career at Lancaster, Pa.

In the later years of his life he maintained offices in Philadelphia and New York, dividing his time between these cities and his home at Lancaster. He was an ardent student, devoting much time to the study of Dental Pathology and Histology, which soon brought him prominently before the profession.

As a clinical demonstrator, Dr. Webb had few, if any, equals. No operation was too difficult or too tedious for him to attempt. He spent much time and money attending dental meetings throughout the country, where he would stick to his post at the chair from six to nine hours at a time, demonstrating the marvelous results of his skill. He confined himself exclusively in his practice to cohesive gold as a permanent filling material and executed some of the most difficult and beautiful operations ever performed. His method was Contour; indeed, "Contour" was his watchword.

If we can but appreciate the adverse conditions through which he struggled and which he overcame, we must acknowledge him one of the giants and wonders of dentistry, for he was one of those who blazed the way and made known the real possibilities of contour work to the profession.

He, like his close friend and admirer, Henry J. McKellops, of St. Louis, was well known for his opposition and utter contempt for amalgam, which he discarded as a filling material in his practice, and undertook to fill with gold all classes of cavities, no matter how difficult or inaccessible.

He took an active interest in everything that would better his profession, and delighted to give others the benefits of his attainments. It was no unusual

thing for him to invite dentists to accept his hospitality, that they might have the opportunity of witnessing him operate. His door was always open to students and practitioners from far and near, who journeyed to see his methods, and none came away without lasting benefits.

As a writer he was concise and impressive, ever emphasizing the high ideals that were part and parcel of his nature. To the journals and societies he contributed essays on subjects in which he was well versed, both practically and theoretically, such as: Dental Caries, Cavities in Proximal Surfaces, Attaching Crowns, Artistic Dentistry, Extensive and Difficult Operations, Restoration of Contour, Fillings, Gold Foil, Gold Crowns—Porcelain Faces, Operative Dentistry, Pulp Capping, Importance of the Preservation of the Teeth, and the Electro-Magnetic Mallet. However, the work that best shows his beliefs, ideals, and operative methods, is his "Notes on Operative Dentistry;" "The keynote of which is cohesive gold." This work was written during the eleven months of his illness, just prior to his death, and has proven a valuable legacy to the profession, having been adopted as a text-book in a number of dental colleges. It was published (second edition) in 1883 by the S. S. White Dental Manufacturing Co., who contributed the net proceeds to Dr. Webb's family. In the preface of this book he beautifully expresses his ideals when he says "That in literature, sculpture, painting and music, and in operations, such as dentists ought to perform, it is not the aim of a Dryden, a Michael Angelo, a Raphael, a Beethoven, or a Varney, to write, carve, paint, bring forth in 'concord of sweet sounds,' or to produce in gold, that which requires but little time and skill, and is simply cheap and inartistic; it is the endeavor of the *artist*, whatever the sphere of his efforts, to produce the perfect and beautiful."

As an inventive genius, Dr. Webb has a distinct place in our history. His most noted work was in connection with the Bonwill Electric Mallet; this he remodeled, making it much more convenient to handle, and more reliable. It was mainly through him that it became so popular with cohesive gold workers. He was an enthusiastic advocate of this instrument. It was his hobby and he was ambitious to bring it before the profession, because he firmly believed better work could be done with than without it. In conjunction with Dr. W. G. A. Bonwill he contributed much to the improvements that made "The Bonwill-Webb Electro Magnetic Mallet" the first and best of its kind ever invented, a success.¹ To accompany this mallet, he devised a set of pluggers that are now in universal use.

¹ "Dental Cosmos," p. 535—1880.

As a society man Dr. Webb was equally active. He was organizer of the Harris Dental Association of Lancaster, Pa., and member of the American Dental Association, the Pennsylvania State Dental Society, the New York Odontological Society and the Odontological Society of Pennsylvania, and an honorary member of the Dental Society of the State of New York and several other societies. He was a member of St. Paul's Reform Church, although his parents were of Quaker descent, to which sect he had a strong attachment.



Boyhood Home of Marshall H. Webb.

He was a member of the order of Masons and American Mechanics and a Republican in politics.

He was married March 25, 1866, to Miss Mary M. Gorgas, of Ephrata, Pa., (now Mrs. J. T. Embree, of Philadelphia). To them were born three children, Wilmer M. Webb, Katie M. (now Mrs. J. E. Gross) and Marshall H. Webb, Jr.

July, 1881, Dr. Webb was a delegate to the International Medical Congress held in London. While there he read several essays and performed a series of

clinics. Small of stature and of delicate physique, he overworked and returned a sick man. His physicians pronounced his last illness a cancer of the descending colon, caused by leaning on the arm of his chair for long periods while operating. From this he died January 1st, 1883, after being confined to his bed eleven months, and was buried in Oakland Cemetery, West Chester, Pa.

Dr. William H. Trueman writes me: "Dr. Webb was a sick man when he left for London. He did in my mouth his last, but one, 'heavy job,' filling four upper incisors, using four books (half an ounce) of gold. I went to Lancaster, arriving on a Monday afternoon. He had done the preliminary work in Philadelphia. He began the next morning, and for two days I was in his chair, my mouth dammed from 8:30 a. m. to 5 P. M. I did not get out, and Webb was at me all that time except fifteen minutes for lunch. I went hungry, not even a sip of water, as we were both anxious that there should be no mishap. One other day he worked for me from 3 to 5 hours and finished about 10 o'clock Sunday morning—six days to fill four teeth. About a week later he went to New York to build up a molar someone said could not be filled with gold. He did it, however, and that was, I think, the last filling he did on this side of the water."

Dr. Edward H. Angle says: "Webb was an inspiration to me, as well as to many others who came in contact with him, and I owe much to him for the encouragement he gave me, when a student, that spurred me on to the accomplishment of better things. He was the most earnest, good-natured man I ever knew. With a large head and a frank, pure face, like that of a divinity, white skin, red cheeks and black hair—in all, a very impressive man, who talked nothing but 'contour' and who was the father of the 'Extension for prevention' idea. The filling of teeth with gold in his hands reached the highest excellence."

Whatever he undertook he never acknowledged defeat, consequently he fell early by the way. He gave more of his time and strength to the cause he loved than he could well afford, and like other professional enthusiasts left his family unprovided for. At his death a score of operators expressed their sense of obligation and sympathy by generous subscriptions to start a testimonial fund, of which Dr. James W. White, editor of the "Dental Cosmos," was treasurer. Dentists throughout the country who were indebted to Dr. Webb as a result of his clinics and teachings subscribed generously to this fund, which was placed to the credit of Mrs. Webb. Perhaps no higher tribute can

be paid to Dr. Webb's character than that of his student, Dr. H. C. Longnecker, who in a biographical notice ("Dental Cosmos," pages 109-110—1883) says:

"Dr. Webb was not an ordinary man. By his professional brethren he was regarded as one of the brightest, most energetic, and withal most self-sacrificing workers in the dental profession. His ambition was to place operative dentistry upon a higher plane, and to attain this end no sacrifice seemed to him too great. His work was at all times marked with a sincere purpose and an honest conviction.

"To the student he was ever ready to lend a helping hand, and no one of his years ever had a greater number of private pupils or more ardent and zealous followers. All of his pupils will recall many acts attesting his interest in their advancement, and will say with one accord that they owe Dr. Webb a debt of gratitude for his unselfish devotion.

"As a clinical instructor he stood without a peer, gentle but firm, always ready, even eager, to demonstrate practically the ideas which he advocated in published essays from time to time: as a student he was earnest and thorough; as a practitioner conscientious, capable and faithful.

"He infused life and enthusiasm among his fellows, and was a hearty worker for the success and advancement of the societies of which he was a member. His efforts in anything he undertook were marked with persistent energy, and though not blessed with a strong physical organism, he was, nevertheless, capable of an immense amount of work.

"No man toiled harder than Dr. Webb, and probably no one has done so much to elevate the standard of operative dentistry. His operations were faultless in point of execution, and there was an elegance about their finish that was truly fascinating. The skill which he attained gave him a prominence in his profession surpassed by none, and though dying so young he fairly was entitled to rank as one of the most distinguished of American dentists.

"Dr. Webb had a love of fun and fondness for caricature, which he indulged without bitterness or cynicism. His arrows were sharp, were aimed with an honest motive, and always hit the mark. His target was the pretender, and no hand has done more than his in so few years of labor to expose shams in the profession and lift up genuine merit to its rightful place. He has written nothing which will not help to make better dentists and better men.

"Of Dr. Webb's home life; of his hospitality; of his relations as husband

and father, it need only be said he exemplified everywhere and always the traits of a Christian gentleman. Dear, kind-hearted, good-natured Webb! who is there to take his place?"

The facts contained in this sketch were obtained from Dr. Webb's daughter, Mrs. J. E. Gross, Philadelphia, and from a biographical sketch, "Dental Cosmos," Vol. XXV, February, 1883, p. 108, by his former student, Dr. H. C. Longnecker, Philadelphia.

Dr. R. R. Underwood, Lancaster, Pa.

Dr. Martin M. Musser, Lancaster, Pa.

Dr. William C. Speakman, Wilmington, Del.

Dr. Edward C. Kirk, Philadelphia, Pa.

Dr. William H. Trueman, Philadelphia, and

Dr. Edward H. Angle, St. Louis.

ROYAL WILLIAM VARNEY, M. D., M. D. S.

A DISTINGUISHED OPERATOR.

In Brecksville Township, Cuyahoga County (near the village of Independence), Ohio, October 8, 1839, Royal William Varney first saw the light of day. His father was Captain William Varney of New England Quaker stock, and his mother Harty Hathaway of Puritan ancestry, a direct descendant of John Alden.

The Varney family moved to Newburg, Ohio, where young Royal received a common school education. As a boy he was quick, impulsive, and an unusually bright scholar, excelling in arithmetic, algebra and geometry. He was extremely modest, and "bashful" to a painful degree. This he had, in later life, a hard struggle to overcome.

His strong and genial character made him a general favorite at school; his intimates were boys older than himself. Being attracted to dentistry, at the age of seventeen he became acquainted with the family's dentist, a Dr. Duman, of Cleveland, with whom he studied with little success. After a short tuition he returned home where he tried to practice for friends and relatives. While thus engaged, he made his own plugger points, saying "there were no good instruments on the market." He also went to the office of his friend, Dr. A. B. Halliwell, of Cleveland, whom he assisted at odd times. This unsatisfactory practice he continued for three years, until in 1859, he went to Cleveland, Ohio, and applied to Drs. William H. Atkinson and Charles B. Butler for instruction. He said to Dr. Atkinson, "If what I have been practicing is all of dentistry, then I am going to give it up. If you can teach me anything, then I want to learn." The doctor described him as a rough diamond, rather uncouth and harsh in his manner. This, however, soon wore off. He arranged with Dr. Atkinson for much needed instruction. Varney proved to be an apt and earnest scholar, and early in his pupilage manifested a desire for a medical education. He took a special course of lectures in anatomy and soon became very skillful as a dissector, eventually becoming assistant to the Professor of Surgery in the Cleveland Medical College. During his pupilage with Dr. Atkinson he applied for, and obtained from the Dean



R. W. Vanney

of the Cleveland Medical College, permission to put two winters' study in one at that institution. After a winter of arduous work he received the degree of Doctor of Medicine in 1863. His desire to acquire a medical education was prompted by a restless patriotic desire on his part to engage in the civil war contest then going on. His hard study caused a serious illness from which he never fully recovered, but, believing that he was needed at the front, he volunteered. He accepted the position of Assistant Surgeon in the Thirty-first Ohio Volunteer Infantry, under the command of General William T. Sherman, of the Army of Tennessee. After serving two years, upon his discharge from the army in 1865, he went to Warren, Ohio, where he spent some months under the instruction of Dr. Corydon Palmer, and then returned to New York to complete his term of pupilage with Dr. William H. Atkinson, with whom he had moved to that city before entering the army and for whom he had a great admiration. Dr. Atkinson considered Varney his especial favorite, and always spoke in the highest terms of him. Atkinson, in his enthusiasm, would say, "Give me Delos Palmer for completeness of finish; Royal Varney for persistency, and Charlie Butler for uniformity, and I will beat the world in filling teeth."

Soon after completing this course, he became associated with the late Dr. George E. Hawes, of Bond Street, who became greatly fascinated with Dr. Varney, and arranged with him to practice in partnership for four years. His success with Dr. Hawes was unparalleled, greatly to the gratification of the doctor. He then started for himself, in 36th Street, near 5th Avenue. Here he continued for four years until his health failed him in 1871.

He systematically made his appointments one hour and a half each, charging per each appointment a fee of \$18. This he persistently carried out. He quickly gathered a large following; many patients that he had when with Dr. Hawes became very fond of him and placed great confidence in his ability. He was soon able to purchase the house in which he commenced practice and during the first year he paid on it \$11,000 cash.

He developed marvelous skill as an operator. He had few equals in filling teeth and no superiors. His especial forte was the manipulation of heavy gold foil with which he built magnificent contoured monuments to his skill.

He was a natural mechanic and designed a set of instruments for packing gold, the Varney pluggers, which the profession readily accepted when they were first put on the market. They are appreciated and in demand to this day. He early became interested in microscopical work and was an enthusiastic investigator and an active member of the American Microscopical Society.

His practice seemed to occupy most of his time, for his writings were few. They were on "Preparation of Cavities," "Epulis," "On Heavy Foil," "Root-fillings." In societies he was not always at ease; he had a horror of contro-versers and sometimes handled them rather pugnaciously; but while he was persistent and self-willed, he had a very kind heart.

He was a member of the Dental Society of the State of New York, which conferred upon him the degree of Master of Dental Surgery, June 29, 1871. He was also a member of the First District Dental Society of New York, the Society of Dental Surgeons of New York, and the New York Odontological Society. He was clinical lecturer to the classes of the New York Dental College, his demonstrations being very instructive and highly appreciated by his students.

He was married to Miss Joan S. Thomas of New York City, August 14, 1866, who survived him at his death. They had no children. Being naturally delicate his rough army experience left him in a weakened condition from which he never fully recovered. In 1869 his health began to fail, pulmonary symptoms developing. His delight in nature was almost unprecedented and he obtained much relief in getting away from his work and living, at intervals, in the woods. In the autumn of 1871, finding his health failing rapidly, by direction of his physicians, he went to Florida, accompanied by his wife. On his way to Atlanta he stopped at Savannah, where he died of tuberculosis, April 12, 1872, and was buried in Greenwood Cemetery, New York.

His early professional friend, Dr. Charles R. Butler, says of him: "He was a warm and true friend; enthusiastic yet modest, inflexible in his integrity; he had a host of friends, by whom he will long be affectionately remembered."

He had a taste for music and was no mean performer on the violin. The matchless operations from his skillful hand, before the advent of the dental engine, did much to demonstrate the real possibilities of operative dentistry and raise the ideal of our profession. He once remarked that his ambition was, if cut short in his work at any moment, the last filling he put in should be his best—the one he would be content to be judged by.

He was a natural mechanic and idealist, whose brain was so educated to appreciate the beautiful and fingers so attuned to perform the most difficult feats, that this marriage of hand and brain resulted in harmonious and wonderful effects. His work placed him in the same class as such masterful manip-

ulators of gold foil as Webb, Allport, Atkinson, McKellops and Corydon Palmer.

The facts contained in this sketch were obtained from:

Dr. Varney's widow, Mrs. Joan S. Pollard, Brooklyn, N. Y.

Dr. Varney's sister, Mrs. C. B. Lockwood, of Cleveland, Ohio.

Dr. Chas. R. Butler, Cleveland, Ohio.

Dr. Thomas Rowe, Cobourg, Canada.

Dr. Delos Palmer, New York City.

Dr. G. Alden Mills, New York City, and

from a "biographical sketch of Royal William Varney, M. D.," by

Dr. Charles McManus, Hartford, Conn.

WILLIAM GIBSON ARLINGTON BONWILL, M. D., D. D. S.

INVENTIVE GENIUS, EVOLUTIONIST, MECHANICAL WIZARD AND ARTIST.

Dr. Bonwill died September 24, 1899, at St. Joseph's Hospital, Philadelphia.

He was born in Camden, Delaware, October 4, 1833, and was the first son of Dr. W. M. Bonwill, a physician of the same place. His early education was obtained in the common schools. From his fourteenth year he utilized every opportunity to follow out his natural mechanical bent by doing work in carpentry, cabinet-making, or, as he has himself expressed it, "doing anything that offered in mechanics from making a gunstock to a blacksmith's bellows or mending a tin pan." He was clerk in a country store and later a school teacher in Burlington, N. J. After five months of the latter occupation he had saved one hundred and twenty-five dollars, and in April, 1853, he went under the private instruction of Dr. Samuel W. Neall, a dentist of Camden, N. J., with whom he remained six months. May, 1854, he began study with Drs. Chapin A. Harris and A. A. Blandy, of Baltimore, who taught him the operative branch for \$50.00 for four months' tuition.

In October, 1854, he began the practice of dentistry in Dover, Del.

October 1, 1863, he, with a few others, organized the Delaware Dental Association at Wilmington. He was elected vice president at this meeting, and in 1866 elected president.

He continued in practice in Dover until February, 1871, when he removed to Philadelphia and opened an office at 1104 Arch street in that city.

In 1866 he received the degree of Doctor of Dental Surgery from the Pennsylvania College of Dental Surgery, and later Jefferson Medical College conferred upon him the degree of Doctor of Medicine. He was married on June 13, 1861, to Miss Abigail E. Warren, an accomplished lady of Dover, Del. Three children survived him, Dr. E. W. Bonwill, of Rangoon, Burmah; Mrs. Caleb J. Milne, Jr., of Philadelphia, and Mrs. Edward S. Gellatly of New York.

Besides his numerous dental society connections, Dr. Bonwill was a mem-



Amos Cornwell

ber of the Union League, the American Philosophical Society, the Art Club, the Historical Society, the Academy of Natural Sciences, and the Delaware Club.

His death removed one of the most conspicuous and remarkable characters ever associated with the profession of dentistry. He was not an ordinary man, and cannot be judged by the standards of ordinary men. Versatile by natural endowment, his many-sided character presented itself to his colleagues and the world in such diverse manner as to lead to the most varied estimates of him. As a matter of fact but few people really knew Bonwill as he was, so aggressively did the many facets of his unique personality present themselves as occasion called them forth. Nervously active in temperament, he was not content to labor physically or mentally as other men, or in accordance with usual standards; the whole energy of his nature was concentrated upon whatever for the time being engaged his attention. He was aggressive in all things, and fearless of consequences in the prosecution of his endeavors. Criticism was to him a stimulant to renewed activity, failure a thing which did not enter into his calculations as a possibility.

To many he was incomprehensive and eccentric, but these knew him not. The impulsiveness of his nature manifested itself in his social relationships as in everything: kindly and affectionate to those whom he regarded as his trusted friends, and an implacable antagonist of those who were not of that class. He had the temperament of an artist as well as the qualities of a mechanician, a strongly developed love of the beautiful, an active imagination, a high order of creative talent in his chosen fields. These qualities gave direction and form to the intense activities of his nature, and made him so fertile in the long list of productions connected with his name and which have made him famous throughout the world of dentistry.

As an operator his technique was remarkable. With the automatic gold-packing instruments of his invention he exhibited a speed and skill in operating which has likely never been equaled. Gold foil under his manipulation became a plastic thing, and flowed into a cavity with a rapidity and exactness astonishing to the onlooker. His methods of practice from time to time underwent radical change.

About 1876 he announced the invention of his diamond reamer, a rapidly revolving diamond point, the use of which he advocated for permanently destroying contact of approximal surface not only for removing superficial caries, but in anticipation of the disease, his object being the same as that of Dr. Robert Arthur,—to secure permanent separations between the teeth. His

technique and the form of space which he advocated were, however, radically different from those of Arthur, especially in that the Bonwill method did not disfigure the buccal or labial contours of the teeth operated upon.

Later on the development of his electro-magnetic mallet, and more especially the invention of his automatic engine-mallet, drew his attention strongly to the value of full contour restorations over the method of separation by the diamond reamers as a system of practice, and he practically reversed his views with respect to permanent separations and became the enthusiastic advocate of full contouring operations. His operations in gold were numerous, elaborate, and wonderful, as has been already alluded to, but, notwithstanding his abilities and successes as a gold operator, he began the study of amalgam as a tooth-saving material. He made studies of its metallurgical and physical characters, and finally produced an alloy which suited his needs. With this he studied in a practical way the question of amalgam as a toothfilling material. As a result he became as expert in its successful manipulation as he was already with gold.

Dr. Bonwill's reputation as a gold operator is world-wide, perhaps his ability to successfully manipulate amalgam is somewhat less widely known and appreciated. His restorations with amalgam were exact and beautiful. Certainly he was a living refutation of the idea that as a man falls off in manipulative skill the more he leans upon plastics, for his skill was equally great as an operator in both gold and amalgam.

As a teacher he was interesting and instructive: his method was his own. Everyone who sought his instruction was welcome, he gave freely of his teaching to all who desired it. He had faith in his ideas, and it was his desire and ambition to perpetuate them for the general good. As he taught, so did he write. Much that he wrote was presented in such form as to place it beyond the grasp of those who were unwilling to delve beneath the externals of this thought for the kernel of truth his words always contained, but those who studied him rarely failed to secure new and valuable items of truth.

His most notable papers are as follows:

1874. The "Electro-Magnetic Mallet." (Read before the Susquehanna Dental Association, May 14) *Pennsylvania Journal of Dental Science*, 1, 257.

1875. "The Air an Anesthetic." (Read before the Franklin Institute of Philadelphia, November 17.) *Ibid.*, iii, 57.

1881. "The Salvation of the Human Teeth." (Read May 7.) *Trans. Odontological Society of Pennsylvania*, 1881, p. 107.

1882. "Plastic Gold Alloys." (Bibulous paper recommended for absorbing surplus mercury from amalgam.) (Read January 7.) *Ibid.*, 1882, p. 143.

1885. "Geometrical and Mechanical Laws of Articulation." (Read June 6.) *Ibid.*, 1885, p. 119.

"Philosophy of the Tooth-brush." (Read November 7.) *Ibid.*, App., p. 1.

1887. "Regulators and Methods of Correcting Irregularities." (Read June 4.) *Ibid.*, 1887, p. 281.

1890. "New Method of Clasped Plates versus Bridge-work." (Read June 7.) *International Dental Journal*, xiv, 86.

1893. "What has Dentistry to Demonstrate Against the Hypothesis of Organic Evolution?" *Trans. World's Columbian Congress*, i, 226.

1897. "Cataphoresis versus The Direct Application of the Galvanic Current for Obtaining Sensitive Dentin; and How to Conduct a Practice that Excluded Both." (Read before the Dental Section, American Medical Association, June 2.) *Dental Register*, li, 381.

1898. "Reminiscences of a European Trip to the International Medical Congress at Moscow in 1897." *International Dental Journal*, xix, 646, 707, 749.

1899. "The Scientific Articulation of the Human Teeth as Founded on Geometrical, Mathematical, and Mechanical Laws." *Items of Interest*, xxi, 617.

He also was the author of some hundred and fifty poems, as unique as his inventions.

Bonwill, like Atkinson, was a spiritualist and said the angels came to him while he was asleep and revealed the things he afterwards invented.

Of the products of his inventive genius the following are the most important:

The Bonwill electro-magnetic mallet, which, according to the statement of its inventor, had its inception February, 1867, and which was patented by him in 1873. For the device the Franklin Institute of Philadelphia, in November, 1875, awarded him its "Cresson" gold medal of the first magnitude. This mallet was later improved by Drs. Marshall H. Webb and Louis Jack. His first dental engine, the one popularly known as the Bonwill Dental Engine, was patented in 1877, and put upon the market in 1879.

In 1875 he announced his discovery of anesthesia by rapid respiration, in a paper read before the Franklin Institute in November of that year. In 1879 he patented his automatic engine-mallet, the basal principle of which was, however, embodied in the revolving hammer plugger of Donaldson, patented in 1875, but neither had knowledge of the other's invention until the Bonwill

mallet was made the subject of patent application. In 1880 he made application for a patent upon the Bonwill tooth-crown, which was allowed in 1881.

He was the inventor of the diamond reamer, already alluded to; use of Japanese bibulous paper in the introduction of amalgam fillings; a double disk device for reducing and pointing nerve-canal broaches, hard rubber and corundum disks; a cervical matrix; numerous attachments for the dental and surgical engine; a system of clasped partial dentures as a substitute for bridge-work, and numerous methods of procedure in practical dentistry.

His anatomical articulator must be classed with his major inventions not only because of the intrinsic merit of the appliance, but because in connection with it he developed his system of articulating artificial teeth upon certain geometrical laws which as yet have not received the recognition and general understanding by the profession which their importance demands. Dr. Bonwill believed that his postulate of the geometrical construction of the human mandible contained the basal truth which when carried to its full logical consequence demonstrated the negation of the doctrine of evolution of animal forms. His hypothesis is as yet unproven, and at the time of his death he was at work upon a volume to be published in its defense, but apart from that phase of the question his studies of human articulation have furnished the first solid basis for the prosthetic reconstruction of the human denture yet enunciated. His faith in the "equilateral triangle" as the basic principle of the universe was abiding. His last published article appeared in the September, 1899, *Items of Interest*, was a revision of his writings upon the triangle of the human jaw. "Singularly," says Dr. Ottolengui, "he was born in '33, lived to the age of 66, and died in '99. The sixty-six years of his life may be likened to an equilateral triangle of twenty-two, and as twenty-two is a trifle more than a man's estate, we may truly reckon that he did for dentistry the work of three men."

His activities as an inventor were not limited to dental fields. He invented improvements in grain reapers, the present Welsbach burner for kerosene lamps, shoe fasteners, the safety pin, was at work on an aerial car run upon the trolley principle, and claimed to have invented, about 1857, the Gifford injector four years before it was brought out in France by the inventor whose name it bears, who reaped a fortune from the invention.

It is quite impossible to more than briefly allude to the more important of his works. In his especial sphere he stood alone. The profession he loved has profited by his genius perhaps more than they understand. He sometimes expressed the belief that he was not appreciated at his full worth.

He was a member of the American Dental Association, the American Medical Association, Academy of Stomatology of Philadelphia, Odontological Society of Pennsylvania of which he was librarian for years, Pennsylvania State Dental Society, Pennsylvania Association Dental Surgeons, and honorary member New Jersey State Dental Society.

He was honored at home and abroad by his confreres, and an honorary member of the Russian, Dutch, German, Spanish and French dental societies, before which he cliniced and lectured. From each of which he received decorations and honors. In America he was equally honored and certainly as well loved, even though the differences which his peculiar personality at times engendered provoked temporary antagonisms. He was Bonwill from first to last, and to those who knew him best he was greatest.

The principal facts contained in this sketch were obtained from an obituary notice in the "Dental Cosmos," Vol. XLI, No. 11, November, 1899.

GEORGE H. CUSHING, M. D., D. D. S.

DENTAL SOCIETY ORGANIZER AND EXPERT OPERATOR.

The subject of this sketch was born in Providence, Rhode Island, May 11, 1829. His parents were Henry and Harriet Philbrook Cushing. His father was cashier of the Providence Savings Bank during the latter part of his life. Young Cushing's early boyhood was passed in Providence in his father's home in the happiest of family relations and amidst the very best of home influences. He attended the city schools and at the age of fourteen began work in a grocery store. Here he continued until at the age of seventeen he entered the dental office of a Dr. Fisher where he studied two years, after which he opened an office in Bristol, R. I. where he practiced one year. Hence he went to California in 1849, sailing around the Cape. After some unsuccessful prospecting for gold he opened an office in San Francisco, where he practiced until 1856. In 1857 he removed to Chicago and practiced in partnership with Quinlan Brothers. After ten years he established an independent practice in the same city and continued it until he removed to Southern California in 1898. In Chicago he first became interested in Dental Society work, a work that afterwards made him a national character. He was one of the founders of the Illinois State Dental Society, of which he was twice president. One of his leading qualities of mind and character was faithfulness to whatever trust he had assumed, from the organization of the Illinois State Dental Society until he left the state to reside in California. For 33 years he never missed a meeting. He was always present at the opening of each session and staid until adjournment. He also served as president of the Chicago Dental Society and the Chicago Odontological Society. In 1865 he became a member of the American Dental Association. He was made president of the same in 1872. He became secretary in 1878 and held that position until 1897 when it was merged in the National Dental Association. He was made secretary of the latter and held the office continuously until his death. Accuracy and faithfulness alone made it possible for him to serve as secretary for two national associations for twenty years, after the consolidation of the old American and Southern Associations, into the present



Geo. H. Cushing

National Dental Association, Dr. A. H. Peck was elected Dr. Cushing's assistant secretary and upon Dr. Cushing's death he was elected as his successor. He served several terms as member of the Illinois State Board of Dental Examiners. His confreres at the time were Drs. G. V. Black, Homer Judd, A. W. Harlan, and C. A. Kitchen.

The Ohio College of Dental Surgery recognized his worth and conferred the degree of D. D. S. on him in 1864 and the Rush Medical College, Chicago, soon after conferred the honorary degree of M. D. upon him.

He was exceedingly painstaking and accurate in whatever work he undertook whether professional or clerical, and as a result was a most skillful and faultless operator. His contour gold and platinum restorations were superior and really works of art. He had an inventive sense that was pronounced and made several improvements on "the dental engine" and appliances for effectualizing its work. The popular "Cushing scalers" were after his original patterns. He never applied for a patent believing that a dentist should contribute freely for the benefit of his profession.

He wrote well and contributed freely to our current literature.

In 1883 the Chicago Dental Infirmary was established for the instruction of students in dentistry or graduates of medicine with the purpose of not conferring the D. D. S. degree until the degree of M. D. had been received by the prospective dental graduate, making it possible for the graduate to receive both degrees in a two years' course. The first dental faculty had but three professors, W. W. Allport, M. D., D. D. S. Professor of Dental Pathology and Therapeutics, George H. Cushing, M. D., D. D. S. Professor of Principles and Practice of Dental Surgery, L. P. Haskell, D. D. S. Professor of Prosthetic Dentistry and Oral Deformities. In July 1884 it became apparent that no appreciable number of students would comply with the above conditions and the name was changed to the Chicago College of Dental Surgery, and a new faculty organized, in which Dr. Cushing did not participate until 1889 when he succeeded Dr. Edmund Noyes as Professor of Operative Dentistry. This he continued until 1891 when he became Professor of Principles and Practice of Dental Surgery of the Northwestern Dental School. Here he continued until in 1898 on account of ill health he resigned and gave up practice in Chicago and removed to Los Angeles. Soon after he was elected president of the board of directors of the Dental Department of the University of Southern California and to the chair of Clinical Operative Dentistry. This position he held until his death, which occurred May 25, 1900, from fatty degeneration of the heart. His remains were cremated and his ashes interred at Grace-

land Cemetery, Chicago, where a monument has been erected to his memory by the Chicago Dental Society.

Dr. Cushing married May Larnard in 1858. She died four months later. In 1860 he married the sister of his first wife, Lavinia C. Larnard. To them were born George H. Cushing, Jr. (died January 23, 1903), Elizabeth H. Cushing, Harriet Cushing (married Oscar Eckstine), and Charles H. Cushing. His wife, Mrs. Lavinia L. Cushing survived him and lives at this date (1908) at Tropic, California. In politics Dr. Cushing was a Republican and a member of the Unitarian Church. He was also a member of the supreme chapter of Delta Sigma Delta Fraternity.

Dr. Garrett Newkirk, an old friend of Dr. Cushing, says of him: "Dr. Cushing's success rested on a foundation of unfailing honesty and sincerity. To all double dealing he was an absolute stranger. No one ever heard Dr. Cushing make a statement that he did not believe, and no one gave more of time, money and talent to its advancement, than he.

"Like all good lovers he was, of course, a hater of some things. Toward men he was kindly, charitable, but he hated shams, insincerity and vanity, hated everything that was done by anybody for mere show or display.

"His friends were attached to him by an unusual magnetism. Society meetings were looked forward to with joy, because Dr. Cushing would be there. He has been sadly missed. Even in the Southern California Society with which he was associated but a year or two, not a meeting has been held since without heartfelt tributes to his memory."

JAMES WILLIAM WHITE, M. D., D. D. S., A. M.

EDITOR AND PHILANTHROPIST.

James W. White, the youngest child of William Rose and Mary (Stockton) White, was born September 29, 1826, at Hulmeville, Bucks County, Pennsylvania. On his father's side he was descended from Henry White, who settled in James City County, Virginia, some time previous to or about 1649; and through his mother, from Richard Stockton, who came to Flushing, Long Island, from England about 1656, and one of whose descendants was Richard Stockton, the signer of the Declaration of Independence. When he was four years old his father died, and his mother removed with her children to her native place, Burlington, New Jersey. In his fifteenth year (13th May, 1841) he entered the establishment of his uncle, the late Samuel W. Stockton, of Philadelphia, whither his elder brother, Samuel S., had preceded him, to learn the manufacture of incorruptible teeth. In 1844 the elder brother began business in the same branch of manufacture, on his own account, and James engaged with him.

In a speech reminiscent of the early days of dentistry Dr. White, referring to this period, some time after described himself as "the entire working force of the establishment," which was a garret at the corner of Seventh and Race streets, where he "ground the crude materials in a hand mortar, compounded them and carried through all the processes to the finished products,—such as they were,—then turned traveling salesman, and exchanged them for currency."

The connection thus begun continued, with one or two brief interruptions, until his death. He saw the seed planted, watched it germinate, and helped to nurture its healthy growth to magnificent proportions. With every step of the development of the great business which grew from the humblest beginning until it overtopped all others of its kind in the world he was closely identified.

In 1879 Dr. Samuel S. White died, and in 1881 The S. S. White Dental Manufacturing Company was organized with a paid-in capital of one million dollars. The recognized executive ability of Dr. James W. White, and his



J. W. White

intimate knowledge of the business, made him the logical head of the new company, and he was unanimously elected its president. That he well fulfilled every expectation is shown by the unflagging prosperity of the house, which steadily went forward under his administration, and by the fact that he was honored by an undisputed re-election to the presidency of the company with each succeeding year. The business grew constantly, involving the necessity of increased facilities, enlarged factories, and a greater number of employes, each bringing additional care and labor to the president, who bore the burden easily, cheerfully, and efficiently.

Besides his connection with the house with which his life work was identified, Dr. White was at the time of his death the senior member of the well-known firm of manufacturing chemists, Hance Brothers & White, although not actively engaged in the conduct of the business, and also a member of the board of directors of the German-American Title and Trust Company.

He studied medicine at the University of Pennsylvania, and received the degree of M. D. from that institution. He never, however, followed medicine as a vocation, though he practiced somewhat extensively among his relatives and acquaintances, as well as among the poor, and was frequently called in consultation by eminent practitioners because of his exceptional ability as a physician. The honorary degree of D. D. S. was conferred upon him by the Pennsylvania College of Dental Surgery, and the degree of A. M. by St. Lawrence University, of Canton, New York.

Entering early into the practical affairs of life, his opportunities for acquiring the education of the schools were limited, but with the aid of an intellect of the highest order and a phenomenal memory he became one of the best-informed men of his day. He had read extensively upon almost every topic of human interest, and a fact once within his grasp never escaped him. As a consequence his mind was a veritable storehouse of knowledge, the ease with which he drew upon it suggesting at times the thought that whatever he learned was mentally labeled, indexed, and filed away in an orderly manner where it would be found when wanted. Method was a part of his nature. Whatever he did was done promptly, neatly, and methodically, and therein lay the secret of his remarkable executive ability.

He was an excellent public speaker, one who charmed by his concise, expressive diction, apt illustration, and convincing logic.

His bent was distinctly literary. He was a ready and polished writer, having a rare faculty of condensation,—of saying much in few words, of making every phrase pregnant with meaning,—and an illustrative and descriptive

talent rarely equaled; qualities which, conjoined with an exhaustive knowledge of any subject upon which he wrote, gave to the productions of his pen a clearness and completeness that always commanded attention. His contributions to dental and medical literature were numerous and important. Upon such subjects as the diseases connected with dentition, and the general physiological and pathological relations of the teeth to the whole economy or to abnormal conditions of remote organs, he was recognized as one of the highest authorities in the world. He was frequently solicited to prepare papers upon these topics, and always responded willingly.

Dentistry is indebted to him for several volumes of great practical value. Among them may be named "Dental Materis Medica" (1868) "Taking Impressions of the Mouth," and "The Mouth and the Teeth." He was the author of the exhaustive presentation of "Diseases Incident to the First Dentition," in the American System of Dentistry; and also of a little pamphlet, "The Teeth, Natural and Artificial," which has had a circulation of hundreds of thousands, spreading everywhere among the people an accurate knowledge of the material facts about the teeth and the necessity and means of proper care for their preservation.

As editor of the "Dental Cosmos," the successor to "The Dental News Letter," first published October, 1847, by Messrs. Jones, White & Co., as a quarterly of which J. D. White and J. R. McCurdy were the conductors and in 1859 converted into "The Dental Cosmos" a monthly with Drs. J. D. White and J. H. McQuillen and George J. Ziegler as editors, his highest literary ability was exhibited and the deepest impress of his virile mind upon dental literature was made. Here was a field for which he was so peculiarly fitted that his work in it was marked by that quality for which the English language contains but one word—genius. No other fitly characterizes the faculties which so exalted the aims, broadened the scope, and enlarged the achievements of "The Dental Cosmos" that its editorship should be accounted the "proudest position, the highest honor, which dentistry has to offer any man."

It was perhaps Dr. White's proudest boast that no number of "The Dental Cosmos," from its establishment in 1859, had been issued without his personal supervision. His name did not appear as its responsible editor until 1872, but his broad knowledge, literary taste, keen insight, and rare judgment, were in its service from the first, ever guiding it onward to the ideal of perfect journalism. Upon his death he was succeeded to the editorship by Edward C. Kirk, D. D. S., Sc. D., who continues to the present time (1908).

Denominationally he was a Universalist, for many years moderator of the

Church of the Messiah. As secretary of the "People's Literary Institute," and chairman of its lecture committee, he managed it successfully for seven years, —before and during the war,—and worked energetically in the maintenance of freedom of speech against bitter opposition, including at one time vigorous proceedings by the mayor of the city.

He was identified with the Freedman's Aid Society; an active worker in the Sanitary Fair, and as chairman of the Committee on Orations and Lectures of that great enterprise, secured the substantial sum of ten thousand dollars toward the grand total. He was a member of the Commission appointed by the University of Pennsylvania under the will of the late Henry Seybert, to investigate the phenomena of spiritualism. He was treasurer of the McQuillen fund, of the Webb fund, and of the Dental and Oral Surgery Section of the IXth International Medical Congress.

Although always taking a keen interest in political affairs, he never held public office but once, and his official career was a wholesome example. When the present city charter went into operation in 1887, Dr. White's well-known reputation as a practical philanthropist gained him, without solicitation on his part, the appointment of President of the Board of Charities and Correction, a department of the city government having charge of the public hospitals and correctional institutions. The position was one of honor and hard work, without pay. He recognized the department thoroughly, placing the administration of the various institutions upon a civil service basis, and after serving with conspicuous fidelity for two years, was removed for refusing to acquiesce in a violation of both the letter and the principles of the civil service laws of the city, for the maintenance of which he was appointed. The entire reputable press of Philadelphia sustained him in his position in this matter, regardless of party affiliations, and with a unanimity as to both his personal character and the great value of his public services which was a tribute as gratifying as it was unique.

Another example of his practical philanthropic work is the Maternity Hospital, of which he was one of the organizers and the president from its foundation in 1872 to his death. Its firm establishment and successful operation were largely due to his untiring zeal. He was also treasurer of the Siberian Exile Relief Association.

These were a few of his public benefactions. Privately he dispensed of his means in the relief of distress with a liberal hand, and labored unweariedly to better the condition of the afflicted and unfortunate.

Without a trace of sentimentality, he loved his kind, and did what he could to make the world brighter and better for his presence in it.

He died at Philadelphia May 27, 1891, in the sixty-fifth year of his age, leaving a widow and three sons, Professor J. William White, of the University of Pennsylvania; Samuel Stockton White and Louis Piers White.

"The Public Ledger," in an appreciative editorial reference to his death, said, "'Benedicite fratercule' were the words which welcomed him into a little organization to which he belonged. 'Benedicite fratercule' will be echoed by many hearts which are sorrowful at parting with him."

BENJAMIN FRANKLIN ARRINGTON, M. D., D. D. S.

FATHER OF THE SOUTHERN DENTAL ASSOCIATION, AND FIRST PRESIDENT OF
THE NORTH CAROLINA STATE DENTAL SOCIETY.

Dr. Benjamin Franklin Arrington died at his home in Goldsboro, N. C., October 29th, 1907. In his death the profession lost an extraordinary member—one whose life was devoted most unselfishly to exploring and carving new paths for our footsteps.

Dr. Arrington, son of James Henry and Mary Spruill Arrington, was born in Nash County, N. C., Sept. 11th, 1827. His parents moved to Tennessee while he was very young, and he was reared there, although he spent much of his time with his grandmother in North Carolina. He read medicine under Dr. S. P. Cutler of Dresden, Tenn., and completed his medical course at the old Transylvania Medical College at Lexington, Ky., from which he was graduated in 1848. He practiced medicine for a while at Hickman, Ky., and in Louisiana, where he went through an epidemic of yellow fever. From here he went to North Carolina and became interested in dentistry, which he adopted and studied. Desiring a college training he went to Baltimore and took a college course, and graduated from the Baltimore College of Dental Surgery in 1853. He practiced at Windsor, Wilmington and Raleigh, and then located at Goldsboro, N. C., 1854, where he practiced both medicine and dentistry until 1858, when he gave up the practice of medicine and devoted himself entirely to dentistry for the remainder of his life, except for a short period following the Civil War 1865-6, he traveled through the Southern states in the interest of the S. S. White Dental Manufacturing Co. During this time feeling the need of a southern state's dental society, he planned and was mainly instrumental in organizing the Southern Dental Association, at Atlanta, Ga., July 29, 1869. He was offered the first presidency, but declined and his brother, Dr. Wm. T. Arrington of Memphis, Tenn., was elected to that office. When the meeting was called he was urged to accept the presidency; but declined, on the grounds that he was not then in active practice. In fact, he had a clause incorporated in the by-laws and rules of order prohibiting a dentist who was not in active practice from holding an office.



His reason for this, was, having been instrumental in its organization he did not care to leave a loop-hole for any over zealous office seeking member that might slip in, to proclaim: "Dr. Arrington did this missionary work among us that he might enjoy the emolument of office at our expense." He cared nothing for personal aggrandizement, and in the affairs of men he generally judged them as they should be, rather than as they are. At the second meeting of the association at New Orleans, April 13-16, 1870, B. F. Arrington was appointed a member of a committee to organize a dental journal to be published under the auspices of the association. At the twelfth annual meeting of the American Dental Convention held at New York City, August 7-9, 1866, Dr. Arrington served the convention as corresponding secretary. For a number of years, he was one of the regents of the Maryland Dental College of Baltimore.

His tastes and his talents led him naturally into mechanics, and he was the inventor of some of our most useful instruments. He was a pioneer in amalgam, and the inventor of the Arrington Amalgam instruments. He also manufactured an amalgam known as "Arrington Amalgam." He also invented a set of smooth edge scalers for the treatment of Alveola Pyorrhoea, also pulp extractors and root pluggers.

His work in dentistry in North Carolina was most important, and like the influence of all earnest, able men, has been felt in an ever widening territory up to the time of his death. The last seven years of his life was devoted to the treatment of his specialty, "Riggs' Disease," of which he was a complete master in the cure of this disease, and without a peer in his treatment of it. Dr. Arrington's method of treating "Riggs' Disease" was as follows: "After removal of the deposit, force water into the pockets with a bulb syringe, then with a trimmed tooth brush, brush the teeth and gums forcibly with dilute sulphuric acid and pulverized pumice, varying from five to fifteen or twenty of water to one of acid, according to the age of the patient and to duration and extent of disease.

"After the use of tooth brush with the dilute acid and pumice use soft pine or orange wood sticks shaped to suit, then with same acid and pumice play well down on and between the roots of teeth, as far down as I can go without detriment of the soft tissues.

"After the mouth is thoroughly washed out with mouthful after mouthful of water, followed by a second application of water in pockets with bulb syringe, apply Campho-phenique freely to the gums and necks of teeth. Then with finger pressure force the gums to teeth, simply to demonstrate to the

patient how it must be done, after each brushing, immediately after meals, and on retiring, until cure is complete. I then instruct the patient to return in two or three days for inspection and the removal of any deposit that may have been overlooked. I then apply the Campho-phenique or spirits turpentine to gums, and request the systematic use of brush with plenty of water in the mouth.

"There is no justification for extreme treatment and high charges. Conservatism and moderation in all things pertaining to dental treatment is the wiser policy, and more equitable and humane." He was foremost in perfecting the organization of the North Carolina Dental Association at Greensborough, September 5th, 1866. After a few years' prosperity the society abandoned to be revived August 11th, 1875, at Beaufort, when Dr. Arrington again was elected president.

He was also a member of the Southern Branch of the National Dental Association after the consolidation. He was a frequent contributor of valuable papers to the literature of his profession. Many of them on Oral Hygiene and the treatment of pyorrhoea alveolaris appearing in "The Dental Cosmos," "The Items of Interest," and "The Dental Brief" in the past. His last public professional utterance appearing in the latter journal.

Dr. J. N. Johnson, his former associate, says of him: "He was the gentlest Knight that ever laid lance in rest. As a man the sweet courtesy of his manner was as unfailing as the flow of the tides, and this added to a charming personality—ideally typical of the old southern gentleman—combined to make him irresistibly attractive in personal intercourse." Two of his brothers were well known dentists of the South *i. e.*; the late Dr. Wm. T. Arrington of Memphis, Tenn., and Dr. John A. Arrington now practicing in Jackson, Tenn. Dr. B. F. Arrington married Miss Barbara A. Everitt in Everiettsville, N. C., January 9, 1855.

He is survived by his wife, three daughters, and one son: *i. e.*: Miss Mary J. Arrington and Mrs. E. B. Dewey, of Goldsboro, N. C., Mrs. Thomas E. Bond of Baltimore, Md., and Mr. John H. Arrington of Rome, Ga. He was a member of the Episcopal Church from early manhood. In politics a Democrat, also was a Mason and Oddfellow.

WILLIAM HENRY GODDARD, D. D. S.

A STURDY PIONEER OF THE SOUTH.

William Henry Goddard, the twelfth and youngest child of Dr. Thatcher and Lucy (Wiswall) Goddard, was born in Roxbury, Mass., June 25, 1808.

His parents were of wealth and influence, and he was granted every advantage for obtaining a thorough classical education. He was a pupil in the Latin school under the charge of Benjamin Gould, Esq., where he became very proficient in both Greek and Latin. From here he was sent to a military school, under the charge of Captain Alden Partridge (formerly superintendent of the West Point Military Academy), of Norwich, Vermont. Here he remained two years, when he informed his father that he desired to be a farmer. His father took him to a Mr. Ingalls, of Dunstable, New Hampshire, who farmed in summer and was a blacksmith in winter. Here he encountered the rough experience of cultivating the New England soil, which was half stone, and also learned to make such implements as an axe, hoe, hatchet, etc. This training was of much benefit in his later life.

Becoming dissatisfied with his rough experience, he returned home and entered the store as clerk of a commerce merchant of Boston. Here he remained until, at the age of nineteen, the spirit of adventure and a desire to be independent caused him to go to New York to seek his fortune.

In 1828 he entered the office of a New York dentist to learn the profession. At that time every office and laboratory was sealed to prevent intrusion; no instruction could be obtained from any source except from his preceptor, whose knowledge was meagre.

The student in those days was obliged to plod along, gleaning from whatever source he could, yet mainly dependent upon his own genius. No colleges or periodicals and few books influenced the mind of young Goddard. Fortunately, he was a reasoner, and after paying his tuition fee at the expiration of a year's study, he was told by his preceptor that he was competent to practice. He opened an office in New York City and practiced with little success. Becoming discouraged, he purchased a drug store, the income from which paid his expenses while his practice increased.



Wm. H. Goudard.

Dr. Goddard was of a restless disposition, and soon sold his business and practice for a few hundred dollars, and moved his family to Ottawa, Ill., where he settled in 1834, on a half section of land (which he bought for one dollar and twenty-five cents per acre), twelve miles from Ottawa, and which he named Brookfield, and devoted his attention to agriculture.

Here he hewed the logs to build his home and began life on the prairies, and here later had the misfortune to lose his wife, son and daughter by death. Thoroughly disheartened, he sold his land and paid his debts, and with the remaining members of his family went to Chicago, intending to embark for New York. Finding that he did not have enough money to pay the passage of all, he gave his wife's mother, sister, and his only son all the money he had, put them on the steamer and bade them good-bye.

Having his instruments, some gold and tin foil, and some teeth, he commenced practice in Chicago, where he earned a few hundred dollars, and returned to New York. From there he went to Louisville to visit his brother, Frank Goddard, a prominent teacher of that city, and concluded to locate there. In 1840 he formed a partnership with Dr. Surgissen, which continued until the latter's death. In a short time he succeeded in establishing himself in a large and lucrative practice, which he fully sustained for twenty years. In 1848 the Ohio College of Dental Surgery conferred on him the honorary degree of Doctor of Dental Surgery.

In 1856 he relinquished his professional work and embarked in the manufacture of agricultural implements, which he continued until the Civil War, when the business failed, and he became bankrupt and his factory was converted into a government hospital for sick and wounded soldiers. To these Dr. Goddard and his wife devoted all their time in the endeavor to ameliorate their sufferings. He was instrumental in establishing a subsistence committee at the Nashville Depot, where several thousand soldiers were fed as they passed through the city on their way south.

Dr. Goddard was a strong Federal advocate and was a deputy collector of port during the war. He was also president of the Dickens Club, an amateur theatrical company consisting of the best people of the city, who, by their entertainments, raised thousands of dollars for charity, for the families of volunteer soldiers, and for the Sanitary Commission. He was one of the founders of the Union Club of Louisville, a strong organization that did much in preserving peace and protecting the city. After the close of the war, in 1867, he resumed the practice of his profession, associated with his nephew and former

student, Dr. Frank Peabody, and continued in full practice until 1870, when Dr. Peabody removed to South America.

He was a very superior operator. Such was his enthusiasm in his profession that he kept fully abreast with all modes of improved practice. This he accomplished by attending every dental society meeting that opportunity afforded. In 1858 he was one of the organizers of the Kentucky State Dental Society, and President in 1869.

He was an active member of the American Dental Association, which body in recognition of his professional integrity, elected him Treasurer for fifteen successive years. In 1882 he was elected President of this society. He was one of the organizers of the American Dental Convention, 1855, and appointed on the Committee on Constitution and By-Laws.

Dr. Goddard's name appears among the dentists invited by the Cincinnati Association of Surgeon Dentists to meet with them in the organization of the first dental association in the West, the Mississippi Valley Association of Dental Surgeons, which convened in Cincinnati on Tuesday, the 13th of August, 1844; at which time Dr. James Taylor was elected President. For many years he held offices of trust and honor in this society.

The minutes of that Association show that from 1850 to 1855, Dr. Goddard acted as Corresponding Secretary, and that he was President of the Association at the meeting which occurred in February, 1885, in Cincinnati.

In 1847 this society began the publication of the "Dental Register of the West," of which Dr. Goddard was one of the editing committee. He was not a prolific writer, his best papers were on "Hypertrophy of the Gums" and "The Arrangement of Sets and Partial Sets of Teeth."

Dr. Goddard united with the Independent Order of Odd Fellows, in 1847, and contributed his time, energies and talents in advancing the principles and interests of the Order, and was for twenty years Chairman of the Widows' and Orphans' Fund of his lodge. He also was active in the Eneampment and the Grand Lodge of Kentucky of this Order. He was a member of the Unitarian Church, and a Republican in politics.

Dr. Goddard was married to Miss Cecelia Graham, of New York, in 1830, who died in Brookfield, Ill. Their only son, William Henry Goddard, a dentist, died in 1864. In 1841 he was again married, to Miss Annie M. Browne of Louisville, Ky., who died June 10, 1848.

They had two children: Mary Clara Goddard, deceased, and Edward Adolphus Goddard. In 1851 he was again married, to Miss Eliza R. Harrington, of Roxbury, Massachusetts, who survived him. To them were born two

daughters, Mrs. Helen Goddard Stewart, of Washington, D. C., and Mrs. Eliza H. G. Fishback, of Colorado Springs, Col.

Dr. Goddard was a sufferer from bronchial consumption, which caused his death, March 4, 1883, after an illness of twelve weeks. He was buried in Cave Hill Cemetery, Louisville, Ky.

In dentistry he exhibited great interest, energy, and industry, and as a result was held in high esteem by his professional *confreres*. No member of the profession was more eager after the discovery of any new light that would aid in promoting higher attainments.

He was a man of most positive character, and made a direct impression in every circle in which he moved. He filled the full measure of the declaration, "An Honest Man the noblest work of God."

The facts contained in this sketch were obtained from the "Dental Register," Vol. XXXVII, 1883, pp. 307-315; the "Dental Cosmos," Vol. XXV, April, 1883, p. 216; Dr. Goddard's daughter, Mrs. Helen Goddard Stewart, Washington, D. C.; his son, Edward A. Goddard, of Louisville, Ky., and Dr. Harry T. Smith, Cincinnati, Ohio.

RICHARD BAYLY WINDER, M. D., D. D. S.

FATHER OF THE NATIONAL ASSOCIATION OF DENTAL FACULTIES AND FOUNDER
OF THE MARYLAND DENTAL COLLEGE.

Richard Bayly Winder was the son of Nathaniel J. and Sally Upshur Bayly Winder. His father was a man of high character and social position. He was born December 6, 1794, and died August 2, 1844, in Eastville, Northhampton County, Va., at his home called "Covington." He was a Barrister, and for many years clerk of both the Superior and Inferior Courts of Northhampton County, Va. At "Covington," the old family home, Dr. Richard Bayly Winder was born, July 17, 1828. He was well prepared for College under the instruction of a Mr. Mort, who was a graduate of Oxford and a fine teacher. He obtained his education at Princeton University and the University of Virginia, where he finished his collegiate education. Returning to his home, record says he conducted a small mercantile business at Eastville for a short time and married Miss Elizabeth Custis, then moved to "The Folly," Accomac County, Va., delightfully situated on a deep creek navigable by boats four miles from the Atlantic Ocean. Here surrounded by slaves, he engaged in farming and horse raising, as a gentleman planter. He was especially fond of horses, having at one time several noted running horses. He maintained a race course on his plantation, where many a hard battle was fought by such well known horses of the day as Glencoe, Sebastapool and others. One of his friends says that on one occasion Dr. Winder said he had too many horses and took two of them to Accomac Court House on court day, and offered them for sale at public auction, but instead of selling he bought two additional horses. He was very hospitable in his home, and all of his old friends speak of him in the highest terms.

At the outbreak of the Civil War, he offered his services to his native State, and was appointed a Major in the Confederate States Army: was imprisoned at the close of the war in the Old Capitol at Washington. Upon being paroled he returned to Accomac, from the war, without means and settled his affairs at his farm, but soon after decided to study the profession of dentistry at the Baltimore College of Dental Surgery, and after graduating



R. B. W. in der

1869 at the age of forty-one years he worked under Dr. F. J. S. Gorgas of Baltimore. He entered upon practice in that city and soon forged to the front and ranked high in his chosen profession and was deservedly popular and respected among all with whom he came in contact. During all the years of his life he retained a warm spot in his heart for the Eastern Shore of Virginia, his birthplace, and it is said of him that he would not accept pay for professional service, when an Eastern shore Virginian was his patient.

Desiring to more fully equip himself for a scientific practice he took a course of lectures and graduated as M. D. from the College of Physicians and Surgeons at Baltimore in 1873. The Maryland Dental College was organized by Dr. Winder in the year 1873, after he had gathered around him such a faculty as Drs. M. W. Foster, Edward and Henry Keech, Samuel Fields, H. Williams and Byron E. Coy, Baltimore home talent. Outside instructors such as Drs. Thos. B. Gunning, J. N. Farrar, E. Parmly Brown, Geo. H. Evans, Kasson C. Gibson and John H. Meyer of New York then well known in their specialties, Marshall H. Webb of Lancaster, Pa., J. R. Walker of New Orleans, W. H. H. Thakston of Virginia, R. F. Hunt of Washington and a score of other well known and proficient men. The first plan differing from the other colleges was the establishment of a board of regents to conduct the examination. This board was composed of fifty or more well known dentists scattered all over the United States. This was an organized body with a president which appointed a committee of three each year to attend the oral examination of the graduating class. This and many other features such as are in existence today in the dental school originated with him. The undertaking was a success beyond all expectation. He was Dean of the Faculty and Professor of Physiology and Hygiene. The school flourished until 1879 when the Maryland Dental College was merged into the Baltimore College of Dental Surgery, Winder being made Professor of Dental Surgery and Operative dentistry, which position he held until his death July 18th, 1894. Soon after his connection with the Baltimore College of Dental Surgery he was elected its Dean and conducted its affairs successfully as he had conducted the affairs as dean of the Maryland Dental College. The reforms organized by him in 1873 beginning with the Maryland Dental College was the beginning of the new era in dentistry, the bringing of such men as mentioned (not all at once but during his career) under his influence and getting together some of all the good that was to be gotten out of them and imparting it to his students; then having a board of regents to see whether it had been properly imparted or not was the beginning of the awakening. The result of all this was that the

Maryland Dental College was invited to come to the Baltimore College of Dental Surgery and Winder was chosen by the Maryland faculty to represent them. Dentistry had plodded along much in the same old way from Harris's time up to '73. Lectures began November 1st, and March 4th was about commencement day. Examinations, clinics and all else being done in the given space of time. It became so common for persons throughout the country to ask the price of a diploma it was printed in the catalogue that diplomas were obtainable only after a satisfactory examination. He was the father of The National Association of Dental Faculties, the greatest protection dentistry has ever had, originated in Winder's brain, then with the influence of such men as James Truman and C. N. Pierce of Philadelphia it became an established fact. He was the first one to advance the idea that dentistry should be recognized and placed on an equal footing with medicine by the United States Government.

Dr. Winder was responsible for the rejuvenation of The Maryland State Dental Association. The society had languished, become unpopular and was doing no effective professional work and he rallied his friends to its support and since the reorganization it has been a live and useful professional body such as Maryland had not known previously. It was through his influence the Maryland and District of Columbia Societies united. He also earnestly advocated the union of the Old Southern Dental Association and the American Dental Association which was afterwards consummated in the union resulting in the formation of the present National Dental Association. He was a member of the American Dental Convention, at the 21st annual meeting of the Society at Long Branch, N. J. August 10-12, 1875, served as a member of the Executive Committee. He was a member of the old Southern Dental Association, President of the National Association of Dental Faculties and President of the Maryland State and District of Columbia Dental Associations 1876.

Dr. Winder was a natural born mechanic. He spent much of his spare time in his younger days carving and designing the most beautiful novelties in both wood and metal which he gave as mementoes to his friends. Naturally dentistry came easy to him. He took genuine pride in teaching his students. He installed the seed that resulted in choice fruit, as evidenced by his many students who have done honor to him and their profession.

He was a Democrat, Mason, Knight of Pythias and member of the Episcopal Church.

Upon the death of his first wife, later he married her sister, Miss Sarah

Custis, who bore him two children, Dr. Richard Bayly Winder II and Mary Custis Winder, now wife of Mr. Henry A. Miller of Wilmington, Del. After the death of his second wife he married 1869 Miss Kate Dorsey of Frederick County, Maryland, who survived him.

Dr. Winder died of Bright's disease July 18, 1894, and was buried at London Park Cemetery, Baltimore. He was a man of courtly manners, handsome of features and possessed of high courage, true in his friendship and honest in all his dealings with his fellow men.

The principal facts contained in this sketch were obtained from Dr. Winder's first private student (1872), confidential friend and companion, Dr. W. B. Finney of Baltimore, and Thomas Teackle Upshur, Genealogist, Nossawadox, Va.

PHINEAS GEORGE CANNING HUNT, M. D., D. D. S.

A PROGRESSIVE PIONEER OF THE MIDDLE WEST.

During the fall of the year 1810 at her father's country home in North Carolina, Hannah Moffitt was married to Aaron L. Hunt, a young surveyor residing in the neighborhood.

About the year 1812 the young surveyor and his wife moved to Champaign County, Ohio, near Urbana. The husband died of smallpox at Springfield, Ohio, in 1833, having represented his county for several years in the State Legislature.

Phineas George Canning, the youngest of a family composed of four boys and two girls, was born on the farm in Champaign County, Ohio, June 16, 1827. At his father's death, the mother removed with her children, to West Liberty, near Knightstown, Henry County, Ind. Young Hunt attended school in Wayne County, near Richmond, during the winter and worked on his uncle's farms at West Liberty during the summer. Thus were passed his youth and school-days, until he attained an age when he realized the necessity of selecting a life occupation.

David Picket Hunt, an elder brother, who had studied dentistry with a Dr. Harding, of Lexington, Ky., located in Indianapolis in 1844, being the second dentist to select that village for residence. As young Hunt possessed high artistic taste and mechanical ability it was quite natural that he should become a student in the office of his brother. This relationship was begun in 1846, when young Hunt was barely nineteen years of age.

Two years later the brother and preceptor died, and young Hunt found the duties and responsibilities of a full practice thrust upon him while he was scarcely more than a boy. Beginning thus with an independent practice at the age of twenty-one, P. G. C. Hunt, continued to serve a clientele almost uninterruptedly for forty-eight years.

No dentist in Indianapolis ever had the confidence and loyalty of his patients like Dr. Hunt. He could leave his practice, and close his office for months, and in two weeks after his return be in the flood tide of work. No



P. S. C. Hunt.

man was ever more sincerely mourned for by his clientele, for they were all his friends who believed and trusted him.

Throughout his life Dr. Hunt was the recognized leader of his profession in Indiana. He was a true representative of the old school type of professional gentlemen, courteous as a Southern, filled with a kindly humor and beloved by all who knew him. His progressive spirit never flagged and at sixty years of age he was as quick to note and try those new methods or appliances that seemed good, as at thirty. He was often far in advance of his co-laborers, but never behind them. As an operator, he was ever ranked with the best in the land, much of his contoured gold work being still in evidence in his home city.

Dr. Hunt was one of the first dentists in the West to cast aside the petty prejudices once so characteristic of the profession, and open the doors of his operating room and laboratory to his professional brethren, freely imparting to all seekers the valuable knowledge and skill of which he had such an abundant store.

In his younger days Dr. Hunt was a frequent contributor to dental journals. He was the author of a number of valuable ideas in practice and invented a number of handy devices for use by dentists, notable among which was one since extensively used by the profession, and which is described in "Richardson's Mechanical Dentistry" under the head of "Attaching Porcelain Teeth to a Metallic Base with Rubber or Celluloid." Dr. Richardson says, "The credit of its first introduction to the notice of the profession is due to Dr. P. G. C. Hunt, of Indianapolis, Ind., who practiced this method as early as 1859." The small articulator for crown and bridge-work, as well as many useful forms of operating instruments were first suggested by him.

In his early days he forged and fashioned in a blacksmith shop many of his instruments himself, especially his operating instruments, and forceps. In 1870 the Ohio College of Dental Surgery conferred honorarily upon Dr. Hunt, the degree of Doctor of Dental Surgery; the Indiana Medical College having already similarly honored him with the Medical Degree in 1869. He took an active part, and was the leading spirit in the organization of the Indiana State Dental Association in September, 1858, and was its first Vice-President. He was elected its President January 2, 1861, and on account of the disturbed state of affairs due to the civil strife then raging, continued to hold the office until 1864, when he was succeeded by the late Dr. A. M. Moore, of Lafayette, Ind. Dr. Hunt was again elected President of the Association at Ft. Wayne, June 27, 1871. The first minute-book of the Association,

December, 1858, records that the following fee bill was adopted on Dr. Hunt's motion:

Full sets of teeth on gold or platinum.....	\$100 to \$200	
One tooth on gold, atmosphere pressure.....	10 "	12
Two teeth on gold, atmosphere pressure.....	12 "	25
One tooth on gold with clasps.....	8 "	10
Three teeth on gold with clasps.....	15 "	18
Two teeth on gold, with clasps.....	10 "	12
Four to ten, \$4 to \$6 per tooth.		
Obturator	50 "	100
Removing pulp and filling molar, gold.....	12 "	25
Removing pulp and filling incisor or bicuspid.....	6 "	15

In 1861 a revised fee bill was adopted the most striking feature of which is vulcanite dentures \$100 to \$150. Before this society he read a number of papers. In a paper on "The Influence and Power of Association," read before the Odontographic Society, Chicago, February 21, 1898, the author, Jonathan Taft, says: "The first presentation of clinics in our profession was made about the year 1859 in the Indiana State Dental Association at Indianapolis. The late Dr. William H. Atkinson, of New York, and Dr. P. G. C. Hunt were the active workers in this, one of the first public clinics."

In 1859 Dr. Hunt attended a preliminary meeting at Niagara Falls, N. Y., convened to consider the organization of a national dental association, and was present at the first session of the American Dental Association at Washington, D. C., in the following year. He was a member of this Association continuously until his death, and was an active worker for many years. He was elected president of that body at Niagara Falls, N. Y., in 1872. September 11, 1851, Dr. Hunt joined the Mississippi Valley Association of Dental Surgeons.

The first law to regulate the practice of Dentistry in Indiana, was passed during the winter of 1878-79, and provided for a board of five examiners which met, according to the enactment, on the last Tuesday in June, 1879, when the board was duly organized by the selection of Dr. Hunt as President, which position he held by re-election continuously until 1895, a period of sixteen years of most effective and honorable service to the dental profession. He refused re-election in 1895, his health rendering the duties of the office onerous. He was a delegate from the Indiana board to the meeting for temporary organization of the National Board of Dental Examiners at Louisville, Ky., in 1882, and again the following year at Niagara Falls, where a permanent organization was effected.

Dr. Hunt was actively instrumental in establishing the Indiana Dental College, in 1878, and was placed at the head of the faculty as Dean. He was also elected President of the Board of Trustees, a position he filled until his resignation some years later. He was again induced to assume the presidency in 1895, and was filling that office at his death.

In early manhood Dr. Hunt was made a Mason, the only secret order with which he ever affiliated. At his death he was Past High Priest, Past Eminent Commander and Past Grand Treasurer of the Grand Commandery, York Rite. In October, 1863, he received the fourteenth degree, Scottish Rite, becoming a thirty-second degree Mason in 1865. In 1870 he received the thirty-third degree and for many years preceding his death was Illustrious Commander-in-Chief, District of Indiana, and an active member of the Supreme Council, Ancient Accepted Scottish Rite, for the Northern Masonic Jurisdiction. He was also a member of Murat Temple, Ancient Arabic Order, Nobles of the Mystic Shrine.

He was an enthusiastic fisherman up to the time of his death, and had caught muscallonge in Michigan, tarpon in Florida and all kinds of fish in the country between. In his latter years he abandoned bait for fly-fishing and was very enthusiastic about it. In his younger days he hunted, but after middle life practically abandoned that for the gentler art. He was full of humor, companionable, and sociable. His chums and co-workers in his younger days, were: Keely, Watt, Goddard, Atkinson, Canine, McKellops, Corydon Palmer, Cushing, Allport and Taft.

He enjoyed music, seldom missing an operatic performance, and in his younger days played the piano and violin without profound knowledge, but with the native temperament and skill that thoroughly pleased the average, if it did not satisfy the hypercritical ear of the finished musician. He sang well in good barytone voice and delighted in entertaining appreciative audiences with "Villikins an' his Dinah," "The Good Gray Mare" and other humorous songs of a half century ago.

He possessed no mean dramatic talent and was foremost in organizing and perpetuating the Scottish Rite Dramatic Association—most of whose active workers are now dead. "Box and Cox," "Poor Pillicoddy," and other of the well-known old farces furnished him chances for exploiting his love of the humorous and his enjoyment of them was keen.

Masonry was his religion. He devoted years of his time to it, and was honored with all that it could offer. He believed in it thoroughly and was a good Mason, hence a good man.

In 1873 he made a fishing and shooting trip from the head-waters of the Kissimee River to Lake Okeechobee, in Florida. At that time that country was a wilderness tenanted only by an occasional settler and trapper, and the Seminole Indians. Becoming much impressed with the country, in 1876, he moved his family to Orange County, Florida, where he had purchased land, intending to operate a sawmill that he had bought and shipped there, and raise oranges. The sawmill venture was a failure. There was a good demand for lumber, but nothing better than sweet potatoes and cow peas to pay for it. After about a year's stay he returned with his family to Indianapolis. From that time to his death he spent much time in Florida each year. His efforts at fruit growing were never remunerative, but the outdoor life and action were of undoubted benefit to him. He had been back from Florida only about a month when he died.

During the time of the oil excitement in Pennsylvania and West Virginia in the fifties, he went into companies formed to dig wells and used to tell about a \$10,000 hole in the ground that he had in West Virginia. Before the war he owned an interest in a line of packet boats running from Louisville to New Orleans, but sold out after a year or so. He always made money rapidly in dentistry and lost it as certainly and as rapidly when he went into other lines of business.

October 29, 1849, P. G. C. Hunt married Hannah Mary, daughter of Isaac N. and Julia Ann (Cully) Phipps. Isaac N. Phipps came to Indianapolis in 1824, and was one of the sturdy and God-fearing men who founded a new State in the middle West. Six children were born to Dr. Hunt and his wife, two boys dying in infancy. The other four, Kate Gertrude Crossland, Lew Ellen Hunt, George Edwin Hunt, and Mary George Kingsberry, are all living in Indianapolis.

Phineas George Canning Hunt died April 24, 1896, of dilatation of the ventricles of the heart, induced by a severe attack of grippe suffered two years previously, and was buried in Crown Hill Cemetery, Indianapolis.

Dr. Hunt was one of the widely known men of the dental profession in the years of his strength and activity. All who knew him well, loved him well. His life left behind it none but pleasant memories: his death brought with it poignant regret from hundreds of his fellow-men.

The facts contained in this sketch were obtained from Dr. Hunt's son, Dr. George Edwin Hunt, Indianapolis, Ind., and from the History of the Indiana State Dental Association, 1858-82.

JONATHAN TAFT, M. D., D. D. S.

AUTHOR, EDITOR, TEACHER AND ORGANIZER.

Jonathan Taft, for fifty years a professor of dental surgery and the man who organized the dental department of the University of Michigan in 1875, died Oct. 16th, 1903. He literally died in the harness, for he was engaged in the active work of his profession to the time of his death.

Jonathan Taft was born September 17, 1820, in Russelville, Brown County, Ohio. His father, Lyman Taft, was a native of Massachusetts and came to Ohio in 1818. Young Taft was educated in the common schools and a small academy in Brown county, where he was a classmate of General U. S. Grant, and taught school for four years. In 1841 he began the study of dentistry in the office of Dr. George D. Tetor in Ripley, Ohio, and began practicing for himself in 1843 in Ripley. In 1844 he located in Xenia, Ohio, and practiced there until 1858. He graduated from the Ohio College of Dental Surgery in 1850 and in 1854 was appointed Professor of Dental Surgery, Hygiene and Microscopy in the same institution and occupied this chair until 1879, when he resigned to accept a similar position as Dean and Professor of the Principles and Practice of Operative Dentistry in the University of Michigan, at Ann Arbor. While connected with the Ohio College of Dental Surgery he was dean for the larger part of the time. In 1857 he moved to Cincinnati and established a fine practice which he relinquished in the summer of 1901 and moved to Ann Arbor.

In 1875 he was invited to organize the dental department of the University of Michigan, and accepted the professorship to teach the principles and practice of operative dentistry.

The first session was held during the winter of 1875. He was made dean of the department which he established on the highest educational basis known at that time, and he endeavored to keep its standard so much in advance of other institutions as the professional progress would allow. Through his efforts the course was extended from two years of six months and a first year high school preparation for admission, to a course of four years of nine months



T. Laft

and a high school graduation for admission, making it the highest educational standard known.

In 1847 "The Dental Register of the West" was started under the auspices of the Mississippi Valley Association of Dental Surgeons, as a quarterly. The publishing committee were, S. P. Hullahen, Wheeling, W. Va., B. B. Brown, St. Louis and James Taylor, Cincinnati. At the expiration of one year, Dr. Taylor assumed the editorship and entire responsibility and published volume 2 to 9. Volume 10 to 25 appeared under the editorship of Jonathan Taft and George Watt, who converted it into a monthly in 1856, and brought the commencement of the volume to the beginning of the year, by issuing six numbers, July to December, to form volume 14 in 1860. With the January 1866 number part of the original title was dropped i. e., "of the West" leaving the name as now "The Dental Register." In 1873 Dr. Taft became the sole editor. This he continued until 1900, when he was succeeded by Dr. Neville S. Hoff, the present editor. This was the pioneer journal of the great Western country and it wielded a marked influence for good in developing dentistry throughout the South and West.

During the winter of 1858-9 he wrote "A Practical Treatise on Operative Dentistry," published by B. Blakiston, Son & Co., Philadelphia, which was so well received that it was adopted as a text book in the colleges and for years was relied on as an authority wherever the science of dentistry was known.

It was translated into German and other languages. The second edition was issued in 1868 and the third edition in 1877. A fourth edition was called for and published in 1883 and a fifth edition in 1903. He compiled an "*Index to the periodical literature of Dental Science and art as presented in the English Language*," which was published by P. Blakiston, Son & Co., Philadelphia 1886. The index contains valuable information regarding early papers published on dental subjects, and is invaluable as a reference book.

Professor Taft was a book lover and gathered a large and valuable collection of dental literature which he sold to the Dr. Theo Menges and is now a part of the Library of the School of Dentistry of Northwestern University, Chicago.

He afterwards collected a complete file of the more important Dental Journals which are now a part of the Library of the University of Michigan.

For nearly forty years Prof. Taft devoted his attention and most earnest efforts toward the organization and support of dental associations, regarding them as of incalculable benefit for the development and progress of the profession. His labors during his professional life were conspicuous in over seventy different professional associations, and during thirty five years of his most

active professional life he averaged from fifteen to thirty society meetings annually. The last meeting he attended was the National Dental Association at Ashville, N. C. 1903, where he appeared hale and hearty and was shown much consideration by his confreres. He likely received on account of his ability and high standing in the profession, more honors at the hands of his associates, than any other one man in the profession.

He was a member of the American Society of Dental Surgeons in 1852; he became a member of the American Dental Convention in 1856, Recording Secretary 1858, Vice President 1862, and was chosen its President in 1863. He was one of the twenty-four pioneers, who organized the American Dental Association in 1859 and was its secretary from the date of its inception until 1868, when he was chosen its president. He was one of the organizers and charter members of the Ohio State Dental Society organized June, 1866, and elected President 1867.

He was a member of the Mississippi Valley Association of Dental Surgeons, (which he joined Sept. 5, 1848) for fifty-four years, and its President in 1852-3, and member of the Cincinnati Society of Natural History. The American Medical Association and of the National Dental Association and elected an honorary member of the Western Dental Society at St. Louis May 20th, 1857. He was one of the organizers of the Ohio College of Dental Surgery Association and its president in 1857. He was President of the section of Dental and Oral Surgery at the International Medical Congress Washington, D. C. 1887.

In 1867-68 he was active in obtaining the passage of a law to regulate the practice of dentistry in the State of Ohio, which was enacted May, 1868 and which was of the highest benefit to the public and the profession. For years he was a member and president of the Ohio State Board of Dental Examiners. He was one of the founders of the present National Association of Dental Examiners, also one of the organizers of the present National Association of Dental Faculties of which he was president in 1899. He was one of the organizers of the American Institute of Dental Pedegogics.

Through his college work, his editorial work, and his general interest in professional affairs, he had much to do with advancing professional standards as well as attainments. He has always kept up with every advance made in the scientific as well as the technical department of the profession and by his suggestions, he has given inspiration and encouragement to many men, who were laboring in these directions. He stood for high professional attainments and rejoiced in any advancement in dental scientific or technical knowl-

edge. Dr. Taft was a superior operator noted for his manipulative skill. Surely Dr. James Taylor was a true prophet, in an editorial in "The Dental Register," October 1851 writing of a visit to Dr. Taft at his home at Xenia, Ohio, he said, "J. Taft is a graduate of the Ohio College of Dental Surgery and we feel assured will ever strive to place the profession on its proper footing in any community he may practice in, we have seen operations from his hands creditable to any operator."

In his religious life he was a devout member of the Congregational Church and occupied prominent places in the councils of this denomination, of a national as well as local character. He was for twenty-five years superintendent of the Sunday school of the Vine Street Congregational Church of Cincinnati, and for nearly as long assistant superintendent of the Bethel Sunday School, a large mission school, having an attendance of from two to three thousand children. He was registrar of the Miami Congregational Conference for nearly thirty years. He was greatly interested in all benevolent objects, gave largely of his means and time to such calls. As a man he was beloved by all who came in contact with him.

While a man of the greatest will power, he was always kind and ready to make such concessions as would overcome trouble. In this respect he had a remarkable control of his natural disposition, which was always aggressive and single-minded. To do what he thought was right was always uppermost in his mind, but readily made such concessions as would seem for the welfare of those about him.

In 1842, Dr. Taft was married to Hannah Collins, of Ripley, Ohio, who died in 1888, and in 1889 he married Mary Sabine of Cincinnati, who survives him. One of his sons Dr. Alphonse Taft of Cincinnati, and one daughter, Mrs. A. T. Edwards, of Ann Arbor, Mich., by the first marriage are still living.

J. FOSTER FLAGG, D. D. S.

THE LAST OF THE FLAGG FAMILY OF DENTISTS.

THE FATHER OF "THE NEW DEPARTURE."

Prof. Joseph Foster Flagg was named after his uncle, Dr. Josiah Foster Flagg, son of the first native born American to adopt dentistry as a calling, and was the last male descendent of that branch of the Flagg family.

J. Foster Flagg, the son of Dr. J. F. B. and Mary Waterman Jackson Flagg was born October 15, 1828, at Providence, Rhode Island. His early education was at the schools in that town, later at a school in Boston, conducted by Mr. Bronson Alcott. While at this school he learned much from his uncle, and from the frequent visits of his father that did much to mould his professional life. Both of these gentlemen were progressive, professional men. Prof. Flagg was much impressed with his father's tactfulness in "breaking the ice" when visiting other dentists. He frequently accompanied his father on these visits, and noticed, that if by chance they were unexpectedly ushered into the office, their entrance was followed by a sly putting away or covering up of anything that might tend to unfold professional secrets. His father was usually provided with something new or suggestive which he now brought out, and proceeded to explain. As this was not preceded by any suggestion of a fee, it at first excited surprise, then as it was seen to be a matter of real usefulness eager attention was given when this point was reached, Dr. Flagg needed some little instrument, or perhaps some laboratory appliance, to make the explanation complete, and presto, the ice was broken. In this way he taught his fellow practitioners the value of mutual confidence and of mutual interchange of thoughts and ideas. It led, in many instances, to life long friendships, and contributed more than can now be known to professional advancement. The two brothers were at this time interested in making porcelain artificial teeth, and young Flagg was their companion and assistant in their experiments. He is credited with making a fair specimen of dental porcelain when at an early age, this brought into play his natural talent, and taught him the value of care and persistency in solving difficult problems.



L. Foster Flagg

About 1852 his father removed to Philadelphia and became one of the leading practitioners of that city and took an active part in events which preceded the organization of a dental association and later a dental college. On completing his schooling, J. Foster Flagg entered the Jefferson Medical College, of Philadelphia, but on account of his youth did not graduate. About 1849, on the discovery of gold in California, provided with instruments and a well stocked medicine chest, so as to be able to practice medicine or dentistry, he embarked for the Pacific Coast, the voyage on the barque "Wanuck" occupying seven months. During the seven years he remained he had varied experiences. At one time at gold digging, again on a ranch, to have his crops destroyed by grasshoppers, next as a cowboy, and later to engage with a few enterprising companions in constructing a dam to impound the waters of a mountain stream for mining and other purposes. This was the first attempt to control these turbulent waters, and the pioneer effort in that which has done so much to develop the industries and resources of that region. At times it was a hard and wild life, full of danger and excitement. It was, however, thoroughly enjoyed by Dr. Flagg. His dental and medical skill was now and again brought into play, and aided by his natural resourcefulness they proved of great use to his companions. The much dreaded Asiatic cholera during this period visited the Pacific Coast. The unsanitary conditions found in mining camps made it particularly fatal. Dr. Flagg urged the adoption of proper precautions, and by his aid and council did much to stay its progress.

While engaged in his engineering project, his mother's serious illness called him home, and he returned, serving on the passage, from San Francisco to Panama, as ship physician.

On returning to Philadelphia he decided to devote his attention to dentistry and entered the Philadelphia College of Dental Surgery, graduating from that institution February 29, 1856. Here he came into close contact with Drs. Elisha Townsend, and Robert Arthur, who by their influence, greatly, moulded his future career. For a few years he practiced in New Jersey; returning to Philadelphia he located with his father at 1112 Arch Street in 1860, and became an expert non-cohesive gold worker and in the administration of chloroform and other anaesthetics for the extraction of teeth. October 31, 1861 he married Miss Mary Craft, who survived him.

He was fortunate in quickly acquiring a satisfactory practice. His genial disposition, his professional skill and his gentleness in operating gave him a firm hold upon his patients. He prudently provided during the active part of his life for the "rainy day" and was able, when advancing years made pro-

fessional duties a burden to retire to his comfortable country home at Swartmore. Here he enjoyed for a few years a well earned rest. He could not remain idle. He occupied his time superintending the manufacture of the various plastic filling materials he had done so much to improve, and in experiments looking to their still further increased usefulness. This he did not relax until the inroads of disease made it impossible. He truly died in harness.

Dr. J. Foster Flagg entered the dental profession with a determination to succeed. He was enthusiastic, energetic and a tireless worker. He possessed to a high degree the true professional spirit, believing that any good thing tending to lessen human suffering should be widely known. He promptly became a contributor to periodic dental literature, and continued to write until his hand was no longer able to guide a pen. His style was expressive, forceful, and interesting. He skillfully used sarcasm and wit to emphasize telling points in argument, so carefully combined, however, as to be inoffensive and enjoyable, even to those who felt his thrusts. He was quite at home in controversy, offensive or defensive, and had the happy faculty of bringing on a hearty laugh, as oil upon troubled waters, when the battle waxed too hot. In speaking or writing he entered into and continued controversy as a means of bringing out truth and correcting error; and was quick to detect and bold to expose the weak points of an argument. But little from his pen has been put in book form. He dwelt mainly with the passing questions of the hour and realized the difficulty of logically arranging and properly recording for permanent use matters constantly changing.

Dr. Flagg was not an enthusiastic dental society man. On professional matters he was so often in opposition with accepted ideas, that, as he often remarked, he seemed to be a professional heretic. He had noted with keen regret that professional societies held tenaciously to accepted theories and methods; and too often were intolerant with those who called these into question, notwithstanding that it is only by so doing that progress is made. Dr. Flagg was progressive; he was constantly looking for something better; he wanted to know more of the why and the wherefore of dental theory and practice, and considered his own experience and observation of more value to him than the "*ipse dixit*" of men long dead. He denied the right of any body of men to dictate what should and what should not be considered accepted practice, especially in a profession like that of dentistry, which had seen so many changes, and still had so many problems to solve. He recognized fully the importance of associate effort, and how essential to professional advance-

ment dental societies were, and keenly regretted that his habit of "thinking aloud" of telling all he knew before others "caught on" so often placed him in front of the "firing line" that he had come to hold his membership in dental societies ever ready to "slip his moorings," to escape expulsion, for doing too soon what "all other fellows would be doing a little later," as he facetiously put it. No one, however, enjoyed more than did he meeting his fellow practitioners or was more ready to take part in society work. And none more welcome, appreciated or listened to with more attention, nor it may be added, more severely criticised, even reproached. To his credit, be it said, he took all in good part: "It's medicine one has to take when going too fast" he said, and he took it kindly. In 1863 Professor John H. McQuillen applied to the state legislature for a charter for the Philadelphia Dental College. Dr. Flagg rendered valuable assistance in obtaining the same, and began his career as a dental teacher with the first faculty of the college, in the spring of 1863, and was the last survivor of that little band. His chair was first entitled "Institute of Dentistry," but was later changed to that of "Dental Pathology and Therapeutics," a change in name only. He resigned at the close of the seventh session, 1870, owing to the demand of his private practice, continuing his connection with the college, however, as a clinical instructor. At the opening of the seventeenth session, 1879-80, he resumed his former position and continued to lecture until the session of 1895-6, when he retired. During this later period, about 1887, the college united with the Medico-Chirurgical College in the erection of a building for joint occupancy, as an economical means of securing better accommodation for their increasing classes. Dr. Flagg had much to do with designing the new structure, and skillfully planned the various rooms so as to secure the largest capacity without sacrifice for desirable convenience. He superintended their construction, and with the skill of a trained architect met and solved the many problems that arose as the building progressed. The finished structure proved eminently satisfactory and well suited for their intended use.

As a teacher he displayed marked ability. His personal magnetism, enthusiasm and his earnestness held the students' attention. He spoke with energy and emphasis, and enlivened his discourse with witty sayings and anecdotes, appropriately told. The prosy recitals of science were enforced by recounts of personal experience and observation, and wherever possible by telling demonstrations. To assist in this, he invented various models and devices, among them a rude representation of the head, with the jaws and teeth in position, for the purpose of illustrating desirable positions for operat-

ing, the use of napkins, bandages and etc. This, much to his amusement, was duplicated and patented in England as something new, a score of years after he had introduced it to his classes.

Dr. Flagg's best work for the profession, and his most lasting and far-reaching was as an investigator. First, in connection with his father, and the late Prof. Thos. L. Buckingham, to determine the role of arsenic as a dental therapeutic agent. While this was not conclusive, it led to a better understanding of its value, and to methods which safeguarded its use and made it more effective. His experiments in connection with plastic fillings attracted greater attention and promises to have more lasting results. Very early in his experience as a dentist Dr. Flagg became dissatisfied with the results obtained by the best methods of tooth-saving then in vogue. The saying so frequently repeated by operators of well established professional reputation, "A tooth that could be filled at all can be filled with gold," did not impress him as a proper statement of the question. What could be done depended very much upon the operator's skill. To him, after seeing many failures on the part of excellent operators to save carious teeth for any length of time with gold fillings, it seemed more to the point to ask not, what can be done, but what is best to do. He found many teeth that he could not fill with gold, and he found many teeth that had been so repeatedly filled with gold that it could be no longer used, and yet these teeth, it seemed to him, were far more useful to their owners than would be artificial substitutes. He moreover found that teeth not far destroyed by caries that gold could not be used, at times, when filled with amalgam, outlasted better teeth in which gold had been placed. He was not satisfied that accepted methods of dental practice were doing, in the way of tooth-saving, all that could be done. He adopted as his motto, "Any tooth than can be made comfortable and useful is worth saving," and could not see why any means contributing to this end should not be considered reputable practice.

He was far in advance of his time in this. Using gold in all cases where it seemed to do the teeth all that could be done, he began the use cautiously, of the much despised amalgam in cases where gold had not proved a satisfactory decay arrester. He quickly noted the many deficiencies of amalgam and began at once an inquiry as to the cause and the remedy. It was not long before he observed that accuracy of adaptation to cavity walls, while essential when gold was used, was not so quickly followed by recurring decay in the case of tin, amalgam, and the non-metallic fillings.

In the early seventies, "The New Departure Corps" was organized consist-

ing of Dr. Flagg, Dr. H. S. Chase of St. Louis and Dr. S. B. Palmer, of Syracuse, N. Y., both of whom had been working with Dr. Flagg in those researches. They were ably assisted by Prof. Henry Morton of Stevens Institute and Messrs. Eckfeldt and Dubois of the U. A. mint. The first three suggested that there was an incompatibility between gold and the substance of the tooth, or *dentos* (a term used for convenience). They suggested that gold and *dentos* were widely separated electro-potentially, a leaking gold filling became a galvanic battery, and the galvanic current thus generated, so changed the fluids in its immediate neighborhood that they became tooth-destroying agents. Furthermore, in many cases those where the teeth were denominated "soft" and in mouths where the teeth are especially prone to decay, they contended that this action took place between gold and *dentos* where no defect at the cavity margin existed. In other words, there were cases where gold was an unsafe filling to use because it was gold, not because of any want of skill or care on the part of the operator. The fillings which proved better tooth savers in such cases owed their efficiency not to their being more plastic, and therefore more readily made to thoroughly fill the cavity, but to the fact that they were, electrically, more in harmony with tooth structure of *dentos*. This constituted the "New Departure" which Dr. Flagg announced in an address to the profession at a special meeting of the Odontological Society of New York November 20 and 21, 1877. Endorsed as it was by men of established reputation and supported by an array of undisputed facts, skillfully arranged and presented, it at once elevated the plastics from the realm of quackery to that of reputable practice. The use of plastics was no longer a confession of weakness, it was no longer a reproach; it was "scientific." This was not, however, generally admitted. While the facts presented were indisputable, it was contended by the opponents of this new theory, that the deductions drawn from them were unwarranted, and Dr. Flagg and his co-laborers were roundly denounced. Nevertheless, no one thing has made a more marked or lasting impress on dental practice than did this address of Dr. Flagg, and however we may feel toward the theory or the practice advised, it has undoubtedly vastly increased the ability of the dental profession as tooth-savers. It has stimulated as nothing else could, the improvement and use of the plastics, and this in turn has made available methods of tooth-saving long known but useless for want of that which this has provided. Let this be placed to Dr. Flagg's credit. With all due honor to his colleagues, who but he could have so forcefully presented it? Who but he had the courage?

His views met with much vigorous opposition. Passing over the merits of

the contentions, it must be stated in fairness that Dr. Flagg sincerely believed in his cause, and his sincerity was evidenced by his voluntarily sacrificing the most lucrative portion of his practice of his assistants or former associates in order to devote himself to the work on plastic fillings, using his patients for experimental purpose. He constantly changed the formulas of his materials, which he manufactured himself with a view to definite knowledge of their action in the mouth. He demanded five years as a minimum period to be devoted to experimentation with each formula before the results might be announced.

Dr. Flagg's office and laboratory was, up to a certain period, always open to anyone who might wish to call to observe methods of practice, and few were they who went away without some sample of material and useful information. At all times his formulas, when found to be valuable were published, and at no period was secrecy maintained as to his processes. While Dr. Flagg manufactured alloys for sale and their sale was profitable to him, he spent money and time liberally in efforts to improve plastic fillings in general. Many will recall his generous weight and the extra material sent with kindly words of encouragement or good will.

The effect of Dr. Flagg's work and that of his associates in this direction has been of inestimable value not only directly in the better and more intelligent use of plastics, but others have been stimulated to the study of the properties of plastics and their fitness for use as therapeutic agents in the treatment of dental caries.

None but those close to Dr. Flagg can appreciate the enormous labor and time he expended in his amalgam experiments; few indeed know his methods. He first began by noting the difference between the behavior of different amalgam fillings. Selecting the alloy which seemed the most promising, he endeavored to determine wherein its excellence lay. With this as a guide, his next effort was to determine the exact value of such available metal, how it was affected by alloying with other metals, and the best proportions. In order to determine these points, he selected a number of skillful, unprejudiced operators known to him to be close observers, and who were located far apart. From time to time he distributed to these portions of alloys with instructions regarding their manipulation, requesting reports of the fillings made from them after a long interval, especially in regard to tooth saving, integrity and color; and further requested that these reports be modified should the later condition of the fillings call for it. Having a record of the formula of the alloy and the treatment it received before it left his hands, when these reports

were received and collated, he had exact data from which to determine its value. After a score of years of this work, about 1881, he was satisfied to publish the results in his work entitled "Plastics and Plastic Fillings," and by subsequent editions and corrections he has kept the profession informed of the progress made. He kept this up until within a few months of his death, a period of more than forty years.

During his dental career Dr. Flagg wrote many articles for the dental journals, notably a remarkable serial on Dental Pathology and Therapeutics, published in "The Dental Cosmos" which extended over a period of nearly ten years. His writings on other subjects were numerous.

Seldom, indeed, has three successive generations been so closely identified with the rise and progress of a profession as have the Flaggs, father, sons and grandson. The father a pioneer; the sons honored exponents of the science, each in his own way making a praiseworthy mark; while the grandson, in labor performed and results accomplished, eclipsed them all. With his death the chapter ends. He was the last of his race. He died at Swartmore, Pa., November 25, 1903.

The principal facts contained in this sketch were obtained from an obituary by Dr. William H. Trueman, Philadelphia, Pa.

HENRY SEYMOUR CHASE, M. D., D. D. S.

FIRST PRESIDENT OF THE IOWA STATE DENTAL ASSOCIATION—"MEMBER OF THE
NEW DEPARTURE CORPS"—EDITOR OF THE MISSOURI DENTAL
JOURNAL AND "SINGLE TAX" ADVOCATE.

Henry S. Chase, son of Dr. Jarvis and Rhoda Campbell Chase, was born March 6, 1820 at Rockingham, Vt. His mother was a great granddaughter of the Duke of Lowden of Scotland. His father was an eminent physician and surgeon of the time, and young Henry seemed destined to follow in his father's footsteps. He first began his career however, before studying medicine, as a clerk in a general store in Boston. His early religious training was Puritanical. Its austerity jarred on his sensitive feelings. Its restraint in the home circle chafed him, to have more freedom, with the permission of his parents, at the age of twelve years he went to Boston and found employment in the dry goods store of Allen and Maw on Court St. Edwin Adams, afterward an actor of note, was a fellow clerk. The family with whom he lived were Episcopalians, he attended their church, and subsequently united with it, and while living in Iowa became practically the founder and builder of St. James Episcopal Church at Independence, Iowa, and after his removal to St. Louis united with Christ's Church Cathedral and was a member of the vestry for years. Desiring to see the Western country he made a trip in his early manhood to the then far west, via the Pennsylvania canal to Pittsburg and by steam boat to St. Louis. From that city he went to Burlington, the capitol of Iowa Territory, purchasing a pony he rode until he came to a home site to his liking, the quarter section he selected now being the center of Tipton, Iowa. His log house was the first civilized habitation of Tipton, soon after the County Commissioners chose Tipton as the county seat and began the erection of a court house. The Sac and Fox Indians were numerous in that locality at that period. After a years residence in Iowa he decided to return to New England and study medicine with his father, then residing at New Bedford, Mass. Following this he attended a course of lectures at the Boston Medical College, and later he finished his course and graduated as M. D. at the Vermont College at Woodstock, Vt., in 1843. While in Boston he became acquainted with a Dr. Fredericks, a success-



Henry A. Chase

ful dental practitioner from whom he took a private course of instruction. Later he went to Baltimore where he formed the acquaintance of Chapin A. Harris and attended part of one course of lectures at the Baltimore College of Dental Surgery, although he did not graduate from this institution. He returned to Woodstock, Vt., where he engaged in the practice of dentistry. January 1, 1845, he married Miss Sarah Haskell. They resided at Woodstock until 1856 when he again was overcome with the Iowa fever. He spent the entire summer of 1856 driving over the Northeastern part of Iowa, seeking a favorable home site, finally selecting a section, 640 acres in Buchanan county, six miles northeast of Independence, which he bought outright from the government at \$1.25 per acre. On this he built the first frame house in Byron Township. He returned East for his wife and four children. He was greatly interested in agriculture and president of the County Agriculture Society. His farming did not prove remunerative and in 1861 he sold his farm and removed to Independence where he established himself in dental practice. Fayette, the county adjoining, having no dentist, he practiced there ten days of each month, dividing his time between the towns of Fayette and West Union. This he continued until the spring of 1865, when desiring his children to attend the State University, he removed to Iowa City. He is the one who took the initiative in organizing the Iowa State Dental Society, which met at Muscatine, July, 1863, for organization with five charter members. The four following elected themselves to office. Dr. Chase was elected the first president, J. Hartman, vice-president, W. O. Kulp, corresponding secretary, A. J. McGarvey, recording secretary and treasurer. He practiced until 1867 in Iowa City, when he visited St. Louis to read a paper and so impressed the St. Louis men he was proffered and accepted the chair of Dental Physiology, Hygiene and Operative Dentistry in the Missouri Dental College at St. Louis. Here he removed in 1868 with his family, taking charge of the practice of Dr. C. W. Spalding, who retired temporarily to his farm. This college connection continued until 1874. In 1865 the Missouri State Dental Association was organized. It was through their efforts that the Missouri Dental College, and especially through the efforts of the state association that "The Missouri Dental Journal" was organized. In 1868 Dr. Chase joined the Missouri State Dental Association and at once took a prominent part in its proceedings, especially in the writing of papers and the discussion of the same. It was his motion that a committee be appointed to organize a joint stock company to start a dental journal. The first issue of "The Missouri Dental Journal" was issued January, 1869, in St. Louis. The editors were Homer A. Judd, M. D., D. D. S., Henry S.

Chase, M. D., D. D. S., and W. H. Eames, D. D. S. Dr. Chase continued as editor of this journal until 1875, when he became editor-in-chief, which he continued until 1880. Dr. Chase was a talented writer and wielded a marked influence, especially throughout the Western country. As an editor, essayist and discussor of papers he also held a prominent position. October, 1877, the Western College of Dental Surgeons was organized. Dr. Chase was Professor of Histology, Microscopy and Dental Physiology. November, the same year, a quarterly journal, "The St. Louis Dental Quarterly," was first published with Dr. C. W. Spalding and Dr. Chase as editors. This was devoted mainly to exploiting the new school and the "new departure creed." All three, the school, journal and "new departure," naturally had many antagonists at the time and a merry war was made on this combination by the older conservative practitioners. The school and journal continued for a number of years and finally was discontinued. He united with J. Foster Flagg and S. B. Palmer in promulgating the "New Departure creed." Formerly an all gold advocate and an expert gold operator, he made a series of experiments which led him to believe that plastic filling materials were of great merit in the saving of the human teeth. He was the author of the celebrated "article one" of the creed; i. e., "In proportion as teeth *need* saving, gold is the *worst* material to use."

The balance of the "creed" was as follows:

II. Neither "contouring filling" nor "separating teeth" has much to do with the arrest of decay.

III. Failure in operations is mainly due to incompatibility of filling material with tooth-bone.

IV. A tooth that can be so treated as to be satisfactorily filled with *anything*, is worth filling.

V. Skillful and scrupulous dentists fill with tin covered with gold, *thereby* preventing decay, pulpitis, death of the pulp, and abscess, and *thereby saving the tooth*.

VI. A filling may be the *best known* for the tooth, and yet *leak badly*.

VII. Gutta-percha, *properly used* is the *most permanent* filling material we possess.

VIII. A *poor* gutta-percha filling, *in its proper place* is better than a *good* gold one.

IX. Amalgam, *per se*, is an *excellent* filling material.

X. The use of "plastic" filling material tends to lower that dentistry which has for its standard of excellence "ability to make gold fillings," but very much extends the sphere of usefulness of that dentistry which has for its standard of excellence "ability to save teeth."

These three men dared to stand as advocates for the plastics against almost the entire profession who at that time contended gold was the *only* filling with which to save teeth. For his stand on this question he was expelled from the Missouri State Dental Association. Chase was of a positive and aggressive nature and a seeker for the truth. Yet he possessed a kind and gentle disposition and was almost universally known as "Pa" Chase, and among his anti-plastic opponents he was referred to as "*Old Putty*." This name pleased him and he insisted he be called by it. In 1865 the Ohio College of Dental Surgery conferred the honorary degree of D. D. S. upon him. He was a member of the American Dental Association and the Southern Dental Association, which he frequently attended as a delegate from the Missouri State Dental Association. He was president of the St. Louis Dental Society in 1870, an honorary member of the Illinois, Vermont, and Iowa State Dental Societies, The Northern Ohio Dental Society, The New York Odontological Society, and The Boston Academy of Science. His spare moments were put in experimenting along scientific lines and with his literary work. He was the author of many papers published in various dental journals and a small work, "Familiar Lectures About the Teeth," which reached the second edition, and also author of numerous poems published in "Arthur's Home Journal" from 1848 to 1852. Dr. Chase was by nature a "reformer." From early childhood he was an earnest advocate of temperance and worked zealously for prohibition by legislation. In 1854 his native state enacted a prohibitory law. After he had witnessed the effects of this legislation he said of it: "All moral effort ceased, public sentiment ceased to grow and the evil did not abate. The truth gradually dawned on me that no evil dependant upon human passions and appetites can be abolished by law."

When he was fifteen years old he saw the mob of 5,000 men pursue and attempt to lynch Wm. Lloyd Garrison, while on his way to jail in Boston. This incident made a staunch abolitionist of young Chase.

Dissatisfied with social conditions, he read Henry George's "Progress and Poverty" which harmonized with his views. He became a convert of the George doctrines and an ardent advocate of "the single tax." In 1887 he organized The Benton School of Social Science which met at his home at Benton Station, St. Louis county. The first three years after this school was organized Dr. Chase distributed individually at his own expense 8,000 single tax tracts, attended 200 public meetings, delivered six lectures and wrote 350 letters on the subject. He was a delegate to the First National Single Tax Conference at New York September 1st, 1890. He wrote and published three

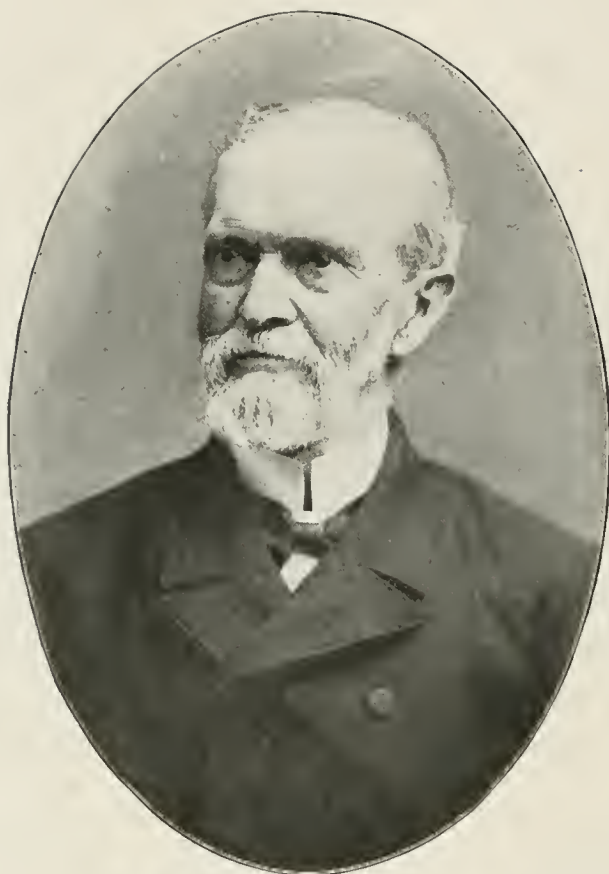
books on social problems and political economy, *i. e.*, "Letters to Farmers' Sons," "Dignity of Sex" and "A Pack of Fools." Most of his writings on these subjects was done from 1880 to 1896. Retiring from practice Dr. Chase spent his energy in his single tax efforts and his summer vacations at Excelsior on Lake Minnetonka, Minn. He purchased a sail boat which he christened "Single Tax," which he kept stocked with literature on that subject which he distributed to the cottagers and hotel guests. He was truly "a friend of oppressed humanity." Another one of Dr. Chase's hobbies was his ardent belief in plenty of fresh air. He advocated and practiced sleeping out of doors. He also was a vegetarian in belief and in practice. He invented a number of useful dental instruments. He was one of the first to apply and practice the principle of local anaesthesia by topical application. In 1851 while practicing in Woodstock, Vt., he crudely though painlessly operated on sensitive dentine by dipping a lock of wool in ether, placing it in the cavity. The evaporating of the ether producing cold, thus bringing about the obtunding effect. (See "Dental News Letter," Volume IV, page 23.) In 1895 he and his wife celebrated their golden wedding anniversary. Children born to them were Drs. Edward C. and Fred B., both St. Louis dental practitioners. Harry, who became famous as a marine artist: Chas. D.; James H.; George S.; Carrie, who died in infancy, and Fannie E., now Mrs. J. D. Lawson, of Columbia, Mo. Dr. Chase died of pneumonia at his home, "Kumfort Cottage," at Benton Station, St. Louis county, Mo., January 11, 1898. His remains were cremated, as was his wish and belief, for he was the first avowed advocate of cremation of the dead in St. Louis and organized the association which built the first crematory in the West.

STEWART BAILEY PALMER, M. D. S.

SCIENTIFIC INVESTIGATOR AND MEMBER OF "THE NEW DEPARTURE CORPS."

Stewart Bailey Palmer was born in the town of Pompey (now Lafayette), Onondago Co., New York, September 1, 1822. His father was Avery Frederick Palmer, born in Stonington, Conn., where their ancestor, Walter Palmer, from England, first settled in 1682. His great-grandfather, the Rev. Wait Palmer, was pastor of the First Baptist Church of North Stonington, and his mother, before her marriage in 1818 was Sally Bailey, born in Massachusetts. They were pioneers, and in their early married life selected a homesite in an unbroken forest, near Pompey, erected a log house, cleared the land and endured the inconveniences and privations incident to pioneer life. They developed their farm and raised a family of seven children. Other families came and a neighborhood school was established which young Palmer attended winters, and worked on the farm during the summer, later attended one term at the Cortland Academy, a noted institution of learning at that time. This term laid the foundation for a systematic private study. His mind seemed to run to physics, chemistry and electricity, and he read and re-read assiduously Comstock's Philosophy (now Physics) which treated of mechanics, hydraulics, acoustics, optics, astronomy, pneumatics, hydrostatics, electricity, magnetism, photography, the steam engine, and etc., all made interesting by over 250 illustrations. This book fired his imagination and excited his ambition to investigate science. To obtain books and the implements with which to experiment he taught school for a year in 1847, applying his earnings for this purpose. The blacksmith shop, saw-mill, and carpenter shop on the farm gave him his first manual training. Here he and his brother worked upon metals and wood in repairing the farm implements and made the farm tools at the forge. Following this he constructed a steam engine, galvanic battery and electric machine, etc.

1847 was the eventful year of his life. From childhood he had suffered with decayed teeth. The extraction of them when necessary was done by the family physician. Dentistry was unknown to him and only heard of by the report of an itinerant who visited the village of Tully, seven miles distant.



Stewart B. Palmer M.D.

Pride as well as necessity opened the way for investigation. The decision was that a plate bearing nine teeth was needed, which demanded the immediate extraction of as many teeth and roots. This was more than fifty years before "extension for preservation" was advocated. It was "extraction for substitution" and revenue only. The operation was performed according to the surgery of the times. The impression upon young Palmer's mind was strong and tense. He concluded there was no more need of that dentist's services. Of this incident he writes the author, "Through him I learned of a patient wearing a plate of his work that could be seen. It was not long before my curiosity was gratified. I was confident that the mechanical work could be done by my own hands and would be if a book of instruction could be obtained. Syracuse, then a village, was the nearest point for information. Dr. Amos Wescott was established in Syracuse and his reputation and standing were so high that I would not venture to make my object or needs known. The aim was to find a dental text-book, not a dentist. A dental depot was found. The instruments and general materials were kept in a drug store in a showcase. Upon a shelf there were a few books and journals of dental literature. One book was pleasing to my eye as the sight of the plate mentioned was illustrated. The title was "The Human Teeth," by Goddard. It was "The American System of Dentistry" of the day, published in 1844. In size it was 10½ by 12 inches, and contained 227 pages. The size of pages gave ample room for cuts and illustrations, which were very fine and explicit. Really it was a creditable presentation of the dental practice of the age. On turning a few pages of illustrations in the mechanical department there was no doubt in my mind as to my success. The price of the book was five dollars. Other inquiries were made relating to materials, and all seemed to be at hand. The day's work was perfectly satisfactory. Not many days after the book was mine and the study of dentistry "without a master" was taken up.

"Each lesson was studied until it was comprehended and the instruments, machinery and material connected therewith were produced and laid aside for use. The casts were made and metal dies for swedging the plate. Before it was convenient to get silver rolled for the plate, a silver fifty cent piece was reduced to an approaching thickness, after which the required gauge was reached by filing and testing with calipers. When all was ready for selection of teeth, with the articulating model, a journey was made for that purpose. The druggist kindly assisted in the selection. From that stage of progress on, the work became quite interesting. Every accomplishment was exactly according to instructions, which inspired confidence in success. It was over six

months from the time of extraction before the case was finished. I can say that the fit and finish of the pieces were as good as would be found to-day. The plate was clasped to the second molars. The third molar remained on one side a few years longer, several sound intervening teeth were sacrificed for the ease of fitting the plate, which was a small compensation to me for the loss sustained. The success attained induced me to make two or three plates for intimate friends, before there was any intention of studying dentistry. Having decided to quit on the farm, I called upon a dentist who was established in the village of Fabius, N. Y. Having made known my intentions satisfactory terms were agreed upon for a course of study without cost of tuition, which was a consideration for acquired knowledge. In short there was no idle time; there being plenty of work on the start that I could do well and that which followed was readily taken. The instructions were far better than were usually found in a country practice. Dr. John L. Allen was from Massachusetts and he was a gentleman, well informed upon general subjects. This was late in 1847. In 1849 I started out for myself with a recommendation written upon a sheet of letter paper signed by my preceptor, there being no law, or license relating to dentistry then required.

"In 1850 I was married to Elizabeth Jane Savery in Sterling, Cayuga County, N. Y., and the year following settled in the Town of Tully, Onondaga County, N. Y., passing over five years of fair practice and close study of dental literature until 1850, which was another year for opportunity offered, not sought. I cannot say offered to me alone, but to every dentist whose address was known in the states to attend the Second annual meeting of the American Dental Convention to be held in Hope Chapel, New York City, in 1856. The invitation was accepted almost instinctively. That was without fully comprehending its benefits and advantages to me, a young dentist of five years country practice, located beyond the reach of a dental society and not known to the profession, to appear in a National Convention for membership, seems now to have been a great undertaking. The organization of that convention was based upon the most liberal, unselfish, sacrificing principles of anything of that nature that has since come to my knowledge. There is today no need of such a movement, as then prompted the organization of the American Dental Convention. The failure of the American Society of Dental Surgeons having taken place through "red tape" in conducting the society, it was thought best that the membership articles of the constitution be suspended. At the next meeting that instrument was abrogated and the convention made an open one. Thus the way became easy and honorable to become a member of the American

Dental Convention. As a member I was introduced upon equal constitutional requirements with the leaders of dentistry in the United States, if not in the World. There was society work offered, accepted and performed. The names of some of the noble, generous, unselfish dentists, who served as Presidents in that convention, including those of members who gave time and energy to raising the standard of dentistry to a degree where a higher motive of appreciation could be realized than had preceded, were John B. Rich, the first president, Chapin A. Harris, James Taylor, Isaiah Forbes, L. W. Rodgers, T. L. Buckingham, John Allen, Amos Wescott, Jonathan Taft, W. W. Allport, H. E. Peebles, W. H. Hurd, John G. Ambler and others."

The next step in advance for education was the organization of the American Dental Association in 1860. The aim of this association was to establish dental societies, which proved a success. New members were received as delegates from local societies. Through that requirements the Central New York Dental Association was organized March 23, 1863, of which Dr. Palmer was the first recording secretary. This society was eventually merged into a district society auxiliary to the state society, and Dr. Palmer was appointed a delegate and was received as a member in the American Dental Association in 1864, another progressive opportunity was offered from an unexpected source, and as its acceptance proved it was of the highest importance. Amos Wescott, M. D. of Syracuse called at Tully and pressed the request that Dr. Palmer should give up his practice and become an equal partner with him. A few days time was allowed for consideration. In the meantime a patient of Dr. Palmer's called and urged the acceptance, with the statement that it was an opportunity of a lifetime. That man was David Hannum of Homer, better known as "David Harum of Homeville," who was employed in the sale of patents belonging to Dr. Amos Wescott, who was the father of the late Edward Noyes Wescott, the author of "David Harum" familiar to American readers as a novel and as a character created and acted by Wm. H. Crane.

Dr. Palmer says:

"About the first interesting case presented by Dr. Wescott to test confidence in Palmer's ability was 'what do you know about obturators for cleft palate?' The answer was 'Nothing practically. Have listened to Dr. Kingsley's description, and seen his illustrations as have been given at society meetings.' I was told that a schoolgirl living in a village several miles distant, was in need of an appliance of that kind, that Dr. Wescott was to take her to Dr. Kingsley in New York City, and arrange for treatment there." Later Dr. Palmer made an examination of the case and found that the fissure extended through

the wall, forward through the soft and hard palates. The lip had been stitched in childhood. The canine teeth and those posterior remained, though quite defective. Terms were agreed upon; success of the operation to depend upon the choice of the parent to retain or reject the appliance. The case was satisfactory. The obturators were made in a metal mold after Dr. Kingsley's description in "The American System of Dentistry." Being of soft rubber, a new palate was ordered about once a year; at no time was the patient without one. Once the case was done over, occasioned by the loss of all the teeth. Still the obturator did good service. Dr. Palmer says: "Two other cases were inserted where the practice was found more perplexing than profitable. Some time subsequent to the completion of the obturator, Dr. Kingsley was demonstrating his appliance and the discussion brought out the criticism that the appliance was impracticable, that no one could construct an appliance from the description given on account of complexity. I was called upon to correct the mistake. Thirty-eight years is a long time in which to demonstrate the utility of an invention, the possibility of its mechanical construction, together with the persistence of the patient in maintaining its usefulness with all of the witnesses living. This accomplishment was not overlooked, occurring as it did at the outset of the partnership. The high standing of the office naturally attracted cases which would command skill and experience. Previous opportunities had inspired confidence not only in self but had its influence upon others connected with the office."

Still another opportunity was offered in 1867. That was an invitation to attend a preliminary meeting of the representative members of the profession looking forward to the organization of a Dental Society of the State of New York. The meeting was held in Utica, N. Y., June, 1868. In the year following the Society was empowered to examine candidates and grant, to those entitled, the degree of M. D. S., (Master of Dental Surgery). In 1869 Dr. Palmer had received the degree and was appointed upon the State Board of Censors from the Fifth District. The duties of the office consisted in conducting oral examinations of candidates for the degree of Master of Dental Surgery (M. D. S.), also of examining candidates and granting licenses to register in the county in which the practice was conducted. This office was held continuously until 1895, when the state degree was no longer conferred. The same Board was continued by the Regents to fill out the time of their terms of office. Since that date the places vacant in the Board have been filled out by appointments by the Regents. In all a service by Dr. Palmer for a period of 35 years, missing in attendance but one year.

For a number of years he was correspondent of this society. He also was a member of the New York Odontological Society, the American Dental Convention, the American Dental Association, which he joined in 1864, and served on various committees and as an essayist many times, and the National Association.

Dr. Palmer became interested with Drs. J. Foster Flagg and H. S. Chase in "The New Departure." Regarding the part he played in this professional drama he wrote the writer in 1901 as follows: "The New Departure creed had been drafted by Professor Flagg; and submitted by him to Professor Chase and myself for revision, and received our written endorsement without modification. No one but myself knows how much that indorsement meant, and the life worry it cost. To have done less than endorse would have been an exchange of duty and honor for self-knowledge of shame and dishonor. There were two reasons for condemnation. First, the creed was twenty years in advance of practice. It was announced in discussion that the teachings 'Debased gold, exalted amalgam and degraded the profession.' This was a belief entertained by accepted practice. The support of the New Departure came from the lower grade of practitioners. It seemed almost unfortunate that such a crisis was forced at that time. My only trust was in science and that has never failed. These were convictions of truth and therefore it was safe to defend it against opposition. Soon after endorsing the principles of the New Departure it was told me that I had made a serious mistake, and in a friendly manner was shown the company I was in, and the consequences that would follow an explosion that awaited the New Departure. Conditions for my salvation consisted in retraction of the endorsement, while there appeared to be no plan of salvation for the other members. One had announced that he was only the mouthpiece of Dr. Palmer, yet he was most in the way. It did not require additional courage to refuse retraction, but it did require moral courage to appear unmoved at the conditions offered for salvation. Fortunately the New Departure was not exploded, consequently no one was hurt.

"The outcome of this movement is well known. Practice has absorbed so much of that which was antagonized in those days that there is but little to contend with at the present time. There was, and still is, a wide difference between Dr. Flagg's method and my own in manifest differences of opinion."

During the whole of his long professional career he continued to be a close student in the different departments of science, particularly in those that could in any way be utilized in practice. In the early part of his professional life his investigations were principally carried on in the departments of mechanics

and chemistry, but later they were directed to the subject of electricity, in which branch of science he became an enthusiastic student and investigator, which resulted in his promulgating the theory of "Vital Electricity" and its application to the cure of disease, particularly to those diseases that are treated by the dentist. In this direction he claimed to have made some important discoveries. Like all men who advance new ideas, he met with those who opposed his views. But Dr. Palmer was always careful and patient, and never put forth any theory until he was thoroughly convinced that it was a correct one, and then, having reached his conclusions and having promulgated them, he did not seem to care to argue with those who opposed, but contented himself with stating them clearly and then leaving the matter there with the remark, "Well time will tell whether I am right or not, and I can afford to wait." Above all things he disliked a wrangle or a quarrel. In fact, he was always a peacemaker, for nothing seemed to distress him so much as a dispute or quarrel; and when one occurred where he was, either among his friends or during the meeting of a society, his whole energies and influence would be at once exerted in the cause of peace and good will. Dr. Palmer was an extensive contributor to the literature of his profession, and his papers are a valuable part of its scientific accumulations.

He died in Syracuse, March 30, 1903, and was buried at Tulley, N. Y.

JOSEPH RICHARDSON, M. D., D. D. S.

AUTHOR AND PROSTHETIC GENIUS.

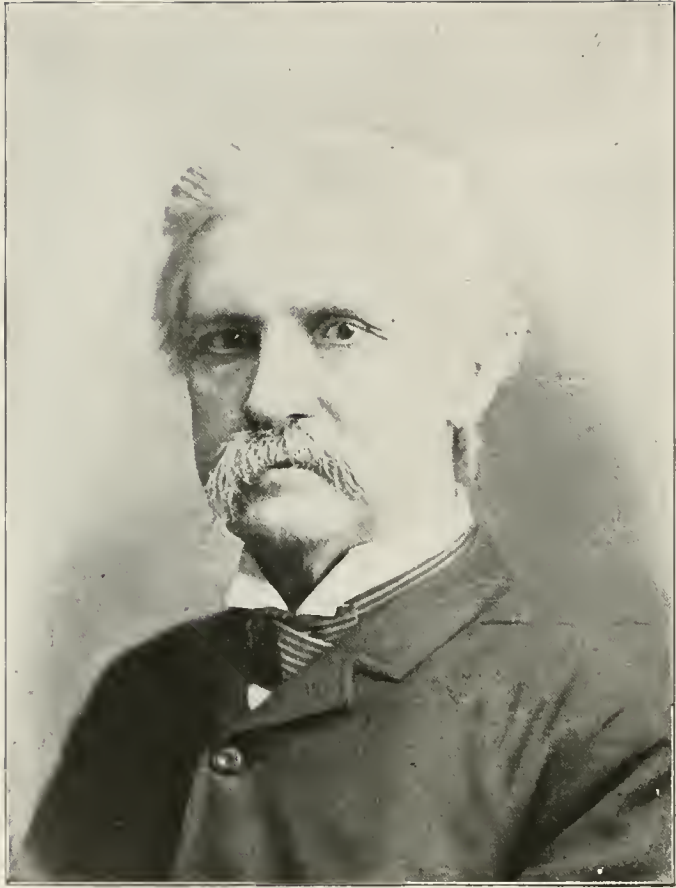
The ancestry of the subject of this sketch settled in Ohio in 1800. Joseph Richardson, son of Joseph and Elizabeth Richardson, was born April 26, 1824, at New Lisbon, Columbiana county, Ohio. His father was a grocer, and died while Joseph was an infant. Soon following his death the mother died and at the age of eight years Joseph was taken by an uncle, Joshua Allen, a small farmer near New Lisbon, with whom he remained until he reached manhood's estate.

Reared on a farm, his early educational advantages were few, but by industry he acquired a good education. Young Richardson was ambitious and obtained a classical education at the New Lisbon Academy; this fired his desire to study medicine. He took a course of lectures at the Ohio Medical College in 1847-8, and obtained the medical degree, after which he practiced five or six years at New Lisbon; then began the study of dentistry under the tutorship of Dr. James Taylor of Cincinnati, Dean of the Ohio College of Dental Surgery, which Richardson attended and graduated from as a D. D. S., February 19, 1853.

Unsatisfied with his limited medical knowledge he took another course of lectures at the Miami Medical College at Cincinnati, and received the second medical degree in 1854. Following this he began dental practice in Cincinnati, where he continued until 1862 when he removed to Terre Haute, Indiana. From the first he took high rank as a practitioner, especially in the department of prosthetic dentistry, at which he was a great genius.

He was first a demonstrator of mechanical dentistry and metallurgy, and in 1858 was elected professor of the same branches at the Ohio College of Dental Surgery. This chair he ably filled for eight years. He was a good lecturer with a copious delivery and the students looked forward to his visits from Terre Haute with pleasure.

After locating at Terre Haute he joined the Indiana State Dental Society, June 28, 1864, and was elected secretary the same afternoon, and the following year was elected president (1865). This honor was again given him in 1872.



J. Richardson

Dr. Richardson served on the Indiana State Board of Dental Examiners for a number of years, associated with Drs. M. H. Chapell and P. G. C. Hunt. At the organization of the Indiana Dental College at Indianapolis, 1879, he was elected "Professor of Mechanical Dentistry and Metallurgy," and the following session he was elected "Professor of the Principles of Prosthetic Dentistry." This chair he held until 1882, coming from Terre Haute one day each week to do this work.

Dr. Richardson was an active dental society worker. At the organization of the American Dental Association, in 1859, he was one of a committee of three appointed to draft the constitution for the society. He was also an active member of the Mississippi Valley Association of Dental Surgeons to which he contributed many valuable and interesting papers. Dr. Richardson was an able writer and amongst his many papers, mostly published in "The Dental Register of the West" and "The Dental Cosmos," were the following, viz:

"Mechanical Dentistry," "Public Dental Journal," "Leeches," "First Inferior Molar," "Pathology of Caries," "Irregularity," "Dental Colleges," "Accidents in Anesthesia," "Chloral Hydrate," "Experiment with Chloroform," "Correlated Diseases of Ear and Teeth," "Artificial Dentures," "Electricity in Dental Operations," "Reflex Lesions of the Mouth in Pregnancy," "The Best Means of Securing Good Teeth," "Gangrenous Degenerations of the Cheek and Gums, with Necrosis and Exfoliation of the Alveolar Processes and Maxillary Bone," "Vascularity of Dentine," "Refitting Temporary Plates," "Application of Gutta-Percha to Pivot Teeth," "The First or Temporary Teeth." Dr. Richardson, for a short time, was associate editor with Dr. W. W. Allport, of Chicago, of "The People's Dental Journal," which Dr. Allport conducted during 1863-4.

His most noted work, however, was entitled "A Practical Treatise on Mechanical Dentistry," published by P. Blakiston, Son & Co., in 1860, while he was teaching dental prosthesis in the Ohio College of Dental Surgery. This work he dedicated to his preceptor, James Taylor, M. D., D. D. S. A second edition appeared in 1868; the third edition in 1880; fourth edition in 1886; fifth edition in 1888; sixth edition in 1893; seventh edition in 1897. Dr. George W. Warren, of Philadelphia, edited the sixth and seventh editions. This was the first extended treatise on this particular subject of dentistry ever published, and at once attracted marked attention wherever our art was practiced, and was the recognized text-book used in all dental colleges for many years. It was translated into the German and French languages, and is a

monument to the life work of Joseph Richardson who was an authority on facial art. In one of his lectures he says:

“Among the unnumbered millions of human beings who have peopled the earth since the dawn of time, it may be affirmed that no two have been created with faces exactly alike. There is the same aggregate of features and a pervading general resemblance of one person to another, but there will be found as infinite a multiplication of distinct shades of facial expression as there are human faces, and each separate shade of expression characteristic of each one, and distinguishing him or her from all others, constitutes facial individuality. Each separate feature—as the eye, the nose, the mouth, the teeth, facial contour, complexion, temperament, etc.—contributes to this individuality, and no one special feature more, perhaps, than the teeth. There are few more repulsive deformities than those inflicted by the loss of these organs, and none more fatal to the habitual and characteristic expression of the individual, and it is the first and highest duty of the dentist to preserve this individuality intact, and an equally imperative duty to restore it as perfectly as possible when impaired. To fulfill in the most perfect manner possible this most difficult of all requirements of prosthetic practice implies an art culture that is competent to interpret the distinct play of features associated with individual physiognomies, to differentiate individual temperaments, and make available the sculptor’s and painter’s perception of the subtle harmonies of form and color. To the failure or inability to properly comprehend the practical import or significance of individual characteristics, so far as the fixed expression in the teeth and the consequent failure to conform our methods of replacement to the imperative requirements of art, may be fairly ascribed the deserved reproach into which prosthetic practice has fallen, and not, as is generally charged, to the employment of any particular material or methods concerned in the mechanical execution of the work.”

He, like many other of our professional forefathers, could do other things well besides his professional work. He was fond of music and artistic in his tastes. Although he never took lessons in painting, his talent in this was remarkable and he painted many fine landscapes that would have been a credit to the professional artist.

He did not write poetry but his prose was masterly. He was more than a mere writer of beautiful sentences. His pages were:

“Illumed by wit that would fascinate Sages,
Yet playful as Peris just loosed from their eages.”

Dr. Richardson was an active member of the Terre Haute Literary Club which was organized in 1881, and of which he was president in 1883, its members consisting of prominent members of other professions and of the foremost citizens. To this club Dr. Richardson contributed a number of excellent papers that are said to be classical. Amongst them were articles on “Greek Physical Culture,” “Dean Swift,” “Bococia,” “Essays on Bacon,”

"Germ Theory of Disease," "Civilization Considered in its Relation to Physical Development," and a paper on "The Life of Joseph Addison," which in the beauty of its diction, syntax and careful preparation, resembles no work so much as that master of the English language, Joseph Addison, himself. Pains-taking accuracy was the most remarkable characteristic of all his professional and literary labors. His work was thorough and it is said he never left "a sentence nor a gold filling until it glistened in its polished perfectness."

Dr. Richardson was married, July 11, 1854, to Miss Anna M. Wise, who died January 29, 1901. Five children blessed their union, viz: Mary, Laura, Lizzie, James and Joseph, all deceased except Miss Laura who still resides at Terre Haute. Dr. Richardson had a brother, J. G. Richardson, M. D., of Cincinnati, a noted obstetrician and Professor of Diseases of Women and Children in the Miami Medical College of Cincinnati. He died some twenty years ago.

Joseph Richardson was not a churchman, but in belief and practice a true Christian, and assisted his wife in raising their children in the Catholic faith. His political affiliations were with the Republican party.

He retired from active professional work several years prior to his death, which occurred August 29, 1889, from Bright's disease.

For several years Dr. Richardson was a member of the city school board of Terre Haute. His scholarly attainments well fitted him for this duty. An accomplished conversationalist, his winning manner and kindly humor gave a charm to what he said. He had many friends both old and young, in his home city, who mourned his death. He died leaving the profession his debtor for his excellent contribution to dental prosthesis, both technically and from a literary standpoint.

The main facts in this sketch were obtained from Miss Laura Richardson, Terre Haute, Indiana, daughter of the subject of this biography; and Dr. H. A. Smith, Cincinnati, and Dr. G. E. Hunt, Indianapolis.

WILLIAM W. H. THACKSTON, M. D., D. D. S.

A DENTAL PIONEER OF VIRGINIA.

W. W. H. Thackston, son of Captain Charles and Mary Lee Thackston, was born at his father's country home in Prince Edward County, Virginia, February 29th, 1820. His early education was acquired under private instructors at home. He studied medicine, and attended the Medical College of Virginia, from which he graduated as M. D. He obtained some technical instruction from his father who was a jeweler and entered the second class of the Baltimore College of Dental Surgery, 1840, and in 1842, received the D. D. S. degree which was also conferred upon his two fellow classmates, J. B. Savier of Virginia and W. R. Scott, M. D., of North Carolina, these three constituting the second graduating class of the college. Immediately after this he located at Farmville, Va., where he practiced for over 55 years, enjoying an excellent reputation as a skillful and scholarly professional man. He was a delightful and typical Southern gentleman and was known as "The Lord Chesterfield of the Dental Profession." Graceful and eloquent in expression, personally always immaculate and fastidious as an operator he lent charm and dignity to his calling. He wrote much for the dental periodicals. Copies of his writings are now in possession of the Vanderbilt University Dental Department at Nashville, Tenn.

He was present at the organization of the Virginia Society of Surgeon Dentists, organized at Richmond, December 12th, 1842, and elected chairman of the first Executive, Examining and Publishing Committee. This was an incorporate body, but not of long existence, and was the first dental society organized after The American Society of Dental Surgeons.

Later on the Virginia State Dental Society was organized, November, 1871, and Dr. Thackston was elected President in 1873-4-5-6-7 and again in 1888, also a member and President of the Virginia State Board of Dental Examiners for a number of years. He did faithful work in securing the passage of the Virginia dental law July 29, 1869. The Southern Dental Association was organized at Atlanta. On account of his high professional standing, he was elected an honorary member of the association but later, 1887, elected to the



W. H. Thackeray

Presidency. Dr. Thackston became a member of the American Dental Association after its organization in 1859 and was also a member of its successor, the present National Dental Association, organized in 1897.

In 1850 Dr. Thackston invented a drill-stock with a bow-drill, with the drill at right angles with the shaft. This was used to excavate cavities, and was similar to the Wescott, Flagg, Chevelier and other drill-stocks, that appeared about the same time. A description of his drill may be found in "The American Journal of Dental Science," 2nd series, Vol. I, p. 101. This was followed by the Merry drill and from these evolved the dental engine.

Religiously he was a Methodist and in politics a stanch Democrat and Mayor of Farmville for 50 years. He also was a member of the I. O. O. F.

July 16, 1848, he was married to Mary Elizabeth Fouckes of Nottaway Co., Va. They had three children i.e., Charles M.; Wm. H.; and Ida E.

Dr. Thackston died December 8, 1899, in his 80th year of his age, and was buried in the Farmville Cemetery.

THEODORE FRANCIS CHUPEIN, D. D. S.

A PIONEER OF SOUTH CAROLINA.

The death of Theodore Francis Chupein occurred on March 23rd, 1901, at Philadelphia.

Dr. Chupein was born in Charleston, S. C., September 7th, 1830; here he received his education and lived until 1876.

At the age of 17 years, he was apprenticed by his father, to Dr. Wm. S. Monefelt for the study of dentistry. Remaining with his tutor from the year 1847 until 1853, he was principally engaged in the laboratory and doing all the artificial work of his preceptor. In 1852 he commenced practice for himself.

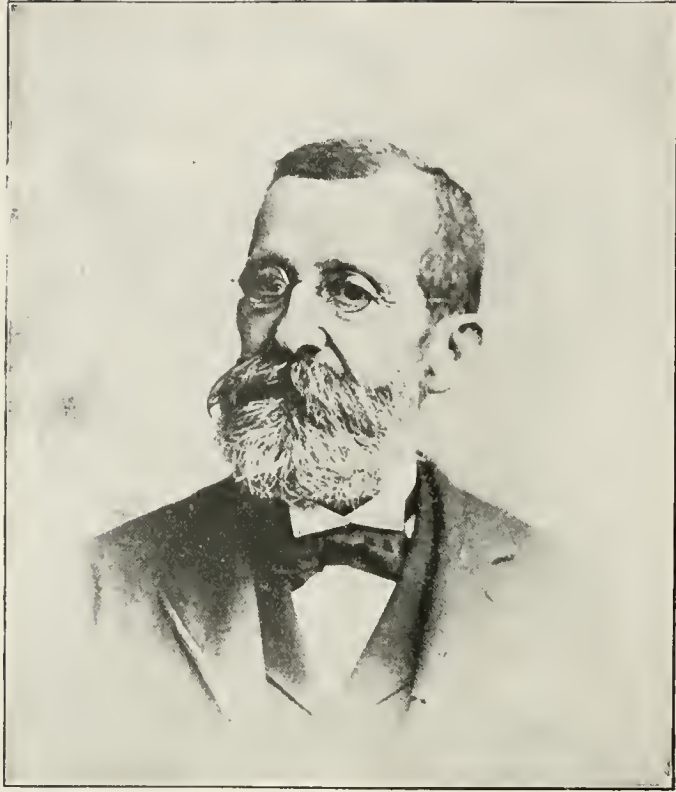
With Drs. J. B. Patrick and W. S. Brown, of Charleston, and Dr. Wm. Reynolds, of Columbia, Dr. Chupein was an active spirit in the formation of the South Carolina State Dental Association, and served as its first secretary and afterwards its president.

He was almost wholly instrumental in the establishment of the Charleston Dental Association, organized December, 1867, being a leader in this organization and giving all his efforts to its advancement. He was its first secretary and treasurer.

He devoted all his time, with little intermission, to his profession, with the exception of the duration of the war, when he served in the Army of the Southern Confederacy. Even then he practiced dentistry, for being for a year or more doing garrison duty he brought his case of instruments in camp and filled teeth for the officers and men who applied to him for this service. At this time, being out of gold foil, he purchased an ounce of this from Messrs. Brown and Hape, of Atlanta, Ga., and paid them fifteen hundred dollars for it.

At the close of the war he came to Philadelphia and obtained employment with Dr. J. De Haven White, with whom he remained until 1866, when he returned to Charleston, S. C., and recommenced the practice of dentistry.

In 1872 he again came to Philadelphia and graduated as Doctor of Dental Surgery from the Pennsylvania College of Dental Surgery, after which he again returned to Charleston.



Theodore F. Chipman

In the latter part of 1875 a disastrous fire so crippled him by the destruction of his office, instruments, library and a dental depot which he had established, that early in the following year he moved with his family to Philadelphia, and at that time opened his office at 1408 Pine Street.

Shortly after his arrival in Philadelphia, 1876, he became a member of the Pennsylvania Association of Dental Surgeons, and in October, 1877, he was elected its recording secretary, which office he has held continuously until his death.

He also connected himself with his old Alma Mater, the Pennsylvania College of Dental Surgery, and occupied the position of one of its clinical instructors.

He was a member of the Odontographic Society, the Odontological Society of Pennsylvania, and was made an honorary member of the Academy of Stomatology.

For some years he undertook the section of the "Practical Place" in the "old series" of "The Dental Office and Laboratory," and in 1887 he assumed the editorial department of the "New Series" of the journal, which he filled up to the time of his death.

He was also a contributor to the American System of Dentistry, the work edited by Professor Wilbur F. Litch. For years he was secretary of the Pennsylvania Association of Dental Surgeons and took an active part in the celebration of what was termed "The Golden Anniversary of this Society," which was the commemoration of the fiftieth anniversary of the organization of that society and the inception of dental education in Pennsylvania, an event which was celebrated on December 16th, 1895, by a banquet at the Continental Hotel. A full historical account was published in the July (1896) issue of "The Dental Office and Laboratory."

He was married in 1858 to Virginia M. Pohl, of Philadelphia. They had six children. His widow and three children survive him.

His long and active life was closely identified with every movement in the advancement of dentistry.

THOMAS W. EVANS, M. D., D. D. S.

DIPLOMAT, HUMANITARIAN AND FAMOUS PRACTITIONER OF PARIS.

Thomas W. Evans died in Paris, France, November 14, 1897, in his seventy-fourth year.

He was born in Philadelphia, Pa., December 23, 1823, of humble parentage and was one of three brothers. The eldest, Rudolph, established himself in the wholesale drug business in Washington, D. C., from which he retired after a successful career. The second brother, Theodore, a dentist, died in Paris in 1890, after having amassed a fortune both in this country and Europe. Thomas W. Evans, the youngest brother, received a common school education, and at the age of fourteen entered the employ of Joseph Warner, a gold and silversmith of Philadelphia, whose business included the manufacture of certain surgical instruments and incidentally of plate, solders, and some of the implements used by dentists. His apprenticeship with Warner brought him into occasional contact with dentists of that period and their methods, and in this way he no doubt derived the impetus which led him later to enter upon the study of dentistry as a profession. In 1841 he became a student in the office of the late Dr. John DeHaven White, of Philadelphia, with whom he remained for two years. During his studies with Dr. White he attended lectures at Jefferson Medical College, from which, in due course, he graduated with the degree of M. D.

He practiced his profession for a time in Maryland, and later, in partnership with Dr. Philip Van Patten, at Lancaster, Pa., with whom he remained until 1847. It was during his stay in Lancaster that Dr. Evans performed a series of gold contour filling-operations which he exhibited at the annual exhibition held under the auspices of the Franklin Institute in the fall of 1847, and for which he received a gold medal in recognition of the novelty and merit of his work. Dr. C. Starr Brewster, an American dentist, originally of Charleston, S. C., practicing in Paris, had his attention called to this work done by Dr. Evans, and was so impressed by it that a partnership was arranged between them.

Accounts differ as to how the association of Dr. Evans with Dr. Brewster



Thomas W. Evans

came about. One version states that Dr. Brewster saw the work at a fair held in Lancaster, another that it was at the Franklin Institute exhibition in 1847 that Dr. Brewster's attention was attracted to it. "The Dental News Letter" of October, 1848, contains the following note regarding the point in question:

"And now we have another American dentist (a native of Philadelphia) in Paris. We speak of Mr. T. W. Evans, specimens of whose pluggings were exhibited at the exhibition of the Franklin Institute in the fall of 1847, which secured him a medal, and drew forth many commendations as to the skill of the operator. On his arrival in Paris he waited on Dr. Brewster, who, after examining his specimens, immediately offered him a partnership, with flattering prospects, which offer was accepted, and Mr. Evans, we are informed, is now a partner of Dr. Brewster."

The partnership between Drs. Brewster and Evans lasted until 1850, during which year he opened an office on his own account in the Rue de la Paix, and entered upon a professional career which was as wonderful as it was unique. The same year he received the honorary degree of D. D. S. from the Baltimore College of Dental Surgery. February 28, 1853, the Philadelphia College of Dental Surgery also conferred the honorary degree of D. D. S. upon him.

Dr. Evans has been generally credited with being the pioneer American dentist in Europe: this is an error. As already shown, Dr. Brewster for one had preceded him by many years, and was in successful and lucrative practice at the time of Dr. Evans' arrival, as did the Parmlys, and E. Maynard of Washington had also preceded Dr. Evans, but did not permanently locate, though he helped to make American dental methods known in Europe. But though in point of time Dr. Evans was not the first, it is certain that he brought to Europe a combination of personal characteristics and special technical ability which not only made him a conspicuous figure, but gave an impetus to dental practice and a status to its representatives before unknown.

Dr. Evans as an operator may have had many peers and in his later life many who excelled him as a practitioner. There were those who place but light estimate upon his abilities as a dentist, and who attribute his phenomenal success to abilities quite apart from his skill as an operator. There is, however, evidence tending to show that he was an operator of more than usual ability. Gold filling done by him during the period of his practice in Lancaster, Pa., was reported as in good condition twenty years later, and the fact of his exhibition work attracting the attention of so skilled an operator as Dr. Brewster and impressing him as it did must tend to confirm a high estimate of his operative skill. In any consideration of his abilities as a den-

tist, his work should be studied in comparison with the prevailing state of the art at the period when his best results were accomplished.

As Dr. Evans was but an infrequent contributor to the periodical literature of his profession, the published records of his work are meagre: such as they are, however, they clearly show originality of thought and fertility of resource in a marked degree. In 1848 he published in "The Lancet," and "The Dental News Letter," and elsewhere an account of his amalgam alloy containing tin and a small quantity of cadmium as its ingredients which accounts give evidence of a careful observation and study of the peculiar physical properties, especially that of malleability, which the addition of cadmium conferred. Much was expected of this mixture i.e., no shrinkage, discoloration or change in the mouth. It is worthy of note and especially creditable to his honesty of purpose, that the inventor of this alloy was the first to observe and report upon the deleterious chemical effects upon tooth structure produced by this combination, due to the cadmium. In October, 1849, in a letter to Messrs. Jones, White and Co. (see "American Journal of Dental Science," Vol. X, p. 142) he withdrew his recommendation, published a note of warning concerning it and later abandoned its use. He was among the first to study and practically develop the applicability of vulcanized rubber as a dental base-plate. It is not certain that he made the first denture on the vulcanite base, but he was at least among the first. During a visit to America he brought with him and exhibited with pride a black vulcanite denture, the first which up to that period he had produced.

He was an occasional contributor to "The Dental News Letter" during its period of publication, but his articles were rather in the form of professional correspondence than of formal essays. In 1853, however, he contributed a lengthy paper upon "The Regulation of the Teeth," which contains, besides much unrelated matter, detailed accounts of the author's methods for correcting a number of the commoner kinds of dental irregularity. A careful study of this paper shows a fairly successful attempt at a classification of dental malpositions, and very great ingenuity in the devising and construction of regulating appliances. He made practical application of the elastic force of hard-drawn gold wire as a source of power in tooth-movement, and used anchor bands in a manner closely simulating the more modern methods of today. The general principles of tooth-regulation set forth in the essay in question will bear favorable comparison with those now in vogue and which are considered orthodox.

The foregoing feature of some of his contributions to dentistry through its literature are adduced not to call attention to his work as a writer, but to

emphasize what is clearly a fact; that he possessed such ingenuity and flexibility of resource, and was far beyond the average of practitioners of his time in point of general ability. Among his writings are found the following, viz., *Natural Teeth on artificial plate*, *Nitrogen Protoxide*, *Pyroxyline*, and *Rubber for artificial plates*.

His professional equipment in itself cannot by any means be regarded as the cause of his phenomenal success. His abilities as a practitioner were merely a contributing factor in a complexus of characteristics which helped to make Dr. Evans the most celebrated American, connected with European dentistry, which was but the stepping-stone which served as a means for bringing him into contact with those to whom he made himself of value and who could contribute substantially to his success. He was a born diplomat, possessing a keen perceptive faculty which enabled him to read and correctly understand human nature. In short, he knew how to make the best of his opportunities, and in some degree create them. His association with Dr. Brewster brought him into contact with the aristocratic element of French society. It was his avowed ambition to secure for his clientele all of the crowned heads of Europe and it has been asserted that in this he succeeded. By his skill and attractive personality he drew them to him and won their confidence. His confidential relationship with Napoleon III has become historical and its two most important results, namely the diplomatic mission intrusted to him by Napoleon to President Lincoln during the war of the rebellion, which resulted in the neutrality of France with respect to that issue. One day the Emperor visited him at his office and informed him that he had received such conflicting reports concerning the possible success of the C. S. A. that he found it difficult to decide whether or not to recognize the Confederacy. If it be recalled at this juncture, that such recognition by France would have been as important to the Southern cause as recognition by the United States was to the Cuban insurgents, it will be seen that Dr. Evans was an actor in this momentous matter. The Emperor after some discussion said, "I wish I had some trusted messenger, whom I could send to the United States to investigate!" Dr. Evans promptly replied, "I will go, if you wish!" and he was accepted as the imperial envoy. On his arrival in this country he hurried to Washington and explained the situation to President Lincoln who disclosed to him so much of his plans as to enable Dr. Evans on his return to Paris to convince Napoleon that the Confederacy could not succeed. Thus France remained neutral.

The aid rendered by him to the Empress Eugenie in her escape to England during the riots following the fall of Sedan and surrender of Marshall Me-

Mahon's army of 15,000 men to the Prussians and the abduction and capture of Napoleon III, at the close of the Franco-Prussian war, are matters of common knowledge and is perhaps the most interesting incident of his career. It was on the early morning of September 4, 1870, when the infuriated mob had fired the Tuilleries, that Empress Eugenie, in disguise, accompanied by Mme. LeBrenton, Prince Metternich and Signor Nigra, the Italian Minister, fled for her life, and while the royal residence was burning, made her way to the residence of Dr. Evans, who was not at home at the time. When he returned he found her in the library.

"Doctor," said the Empress, trembling with emotion, "there are few persons in Paris today in whom I can trust. The people are shouting for my blood. They want to place my head on a pike as they did with the head of Princess Lamballe: but, I am sure I can trust you. I know the great peril that my appeal will cause both Mrs. Evans and yourself. You might lose all you have, but oh, if you can only assist me to escape from Paris and France."

The doctor assured the Empress that both Mrs. Evans and himself realized that they owed much to Napoleon and herself and at once offered his hearty co-operation at any cost. He assured her that he had unlimited confidence in his servants, and particularly in his coachman. Then he bade her to be calm while he was absent to arrange her escape. He jumped in his carriage and drove to the barricades on the outskirts of Paris. He was known as "the English doctor," and when he was stopped by a sentinel at the Bridge of Neuilly and challenged he replied that he had a patient a little way out of Paris and was in haste to answer an urgent call. The sentinel was satisfied, and let him pass, calling out that he wished the doctor would get a good fee.

Thus he assured himself of the ease with which he could pass the lines, and in a short time returned. He then told the sentinel that he had to return to Paris for medicine and instruments. Upon inquiring if that particular sentinel would be on duty long the doctor learned that he would be on guard until after midnight. With the caution that if the soldier would meet him there shortly before midnight he would receive two boxes of the finest cigars made as well as a bottle of the best brandy on earth the doctor drove on, re-entered Paris and informed the Empress that he was ready for the venture.

"With Eugenie playing the part of a feeble woman accompanied by Mme. Lebreton who impersonated a nurse crouching down under a skillfully arranged shawl on the bottom of the carriage the perilous journey was attempted. Reaching the sentinel who was there ready for his brandy and cigars the doctor leaned out of the carriage, with the boxes in one hand and the bottle in the

other, thus completely hiding the trembling form of the Empress. With a cheerful remark to the soldiers the doctor ordered the coachman to hasten on. Eventually they made their way to Denuille after two days of anxious traveling and hard driving, to be stopped several times and questioned. Dr. Evans was equal to each emergency and they were not recognized. When they arrived at Calais, Dr. Evans went to Sir John Burgoyne, owner of the yacht "Gazelle" and with much difficulty persuaded him he had the Empress in his charge. She embarked without discovery and crossed the Channel in the furious gale, which wrecked the British battleship "Captain," which, by curious coincidence, was commanded by a son of Sir John Burgoyne. Dr. Evans left an estate of \$4,000,000 mostly derived from his successful investments in real estate.

One who could speak with authority said at the time of his death, "It has been stated that Dr. Evans owed his fortune to the patronage shown him by Napoleon III. This is not wholly true. It is a fact that the doctor's reputation was greatly enhanced by the confidence of the French Emperor, and that his list of patrons was greatly enlarged as a result, but by far the greater portion of his accumulated wealth was due to the real estate investments made possible through the personal friendship of the Emperor.

During his last visit to America, which he made for the purpose of bringing his wife's remains to her native city for burial, he expressed the intention of endowing certain charitable and educational institutions, among others a dental college. This his will provides for and it is expected that the Thomas W. Evans Museum and Institute will be established in Philadelphia with an endowment of \$3,000,000.

Much of Dr. Evans' life was devoted to works of charity and philanthropy. He rendered important service during the Crimean and Franco-Prussian wars in the care of wounded soldiers, and in introducing more sanitary and humane methods in military hospitals. Sent by the Emperor at his own suggestion, during the Crimean war, to study the sanitary conditions of European camps and hospitals, he was so impressed by the pictures of misery and suffering there presented to him that on his return he secured the interest of the civilized world in important measures of reform. His record during the late civil war in the United States will be found in the history of the United States Sanitary Commission, which he organized in Philadelphia, coming over especially to serve his native land in the hour of need. During the Franco-Prussian war he was probably the only man in Europe who was free to pass from camp to camp. During all this memorable campaign he personally directed the movements of the ambulance corps of the Red Cross Society.

He was greatly interested in Lafayette House, a home for friendless girls for which he spent much time and money. He increased the number of bed rooms from seventy to one hundred in this institution. He and his wife helped hundreds of American girls to secure good homes and employment in Paris. It was his intention to endow this home, an intention lost by a day's delay, for when his lawyer and nephew entered his bedroom to witness the new disposition of his property, he had just passed into eternity. He also financially assisted many art and other students to finish their studies in Paris.

It was the elements of character which led him to undertake such work and the association which it made for him that more than all else contributed to his reputation and material success. Throughout his whole career he never forgot, and indeed constantly emphasized, two facts: first, that he was an American; and that he was a dentist. In his loyalty to his profession he was steadfast; his faith in its possibilities was unfaltering; he was always the champion of high professional ideals. The principles which animated his professional life he manifested from the beginning of his work, and were in marked contrast with those of many of his early confreres. In a communication written soon after he located in Paris he said, "I may have but little to impart, yet that little is at the service of each and all members of my profession; and gladly would I hail the day that should make all that is sound in science and valuable in art common property. By the discussion of subjects connected with the profession and by the contribution of each according to his ability, by the comparison of the different modes of practice and by making known all new discoveries and improvements, we shall place the profession on more commanding ground, and better serve the generation in which we live."

That his professional life was lived in harmony with these principles the results show. The measure of success which he attained was not limited to material acquisitions, but was extended to the elevating influence which he exerted upon the general status of his profession. He lived to see his chosen calling placed upon more commanding ground, and the value of its ministrations to his generation substantially recognized. That his lifework was a large contributing factor to that end cannot be doubted, and when all of the factors which have helped in the advancement of the professional status of dentistry are fairly estimated, the influence of the life of Thomas W. Evans will be among the greatest, for through his efforts American dentistry was given the highest recognition in Europe.

WILLIAM GEORGE BEERS, D. D. S., L. D. S.

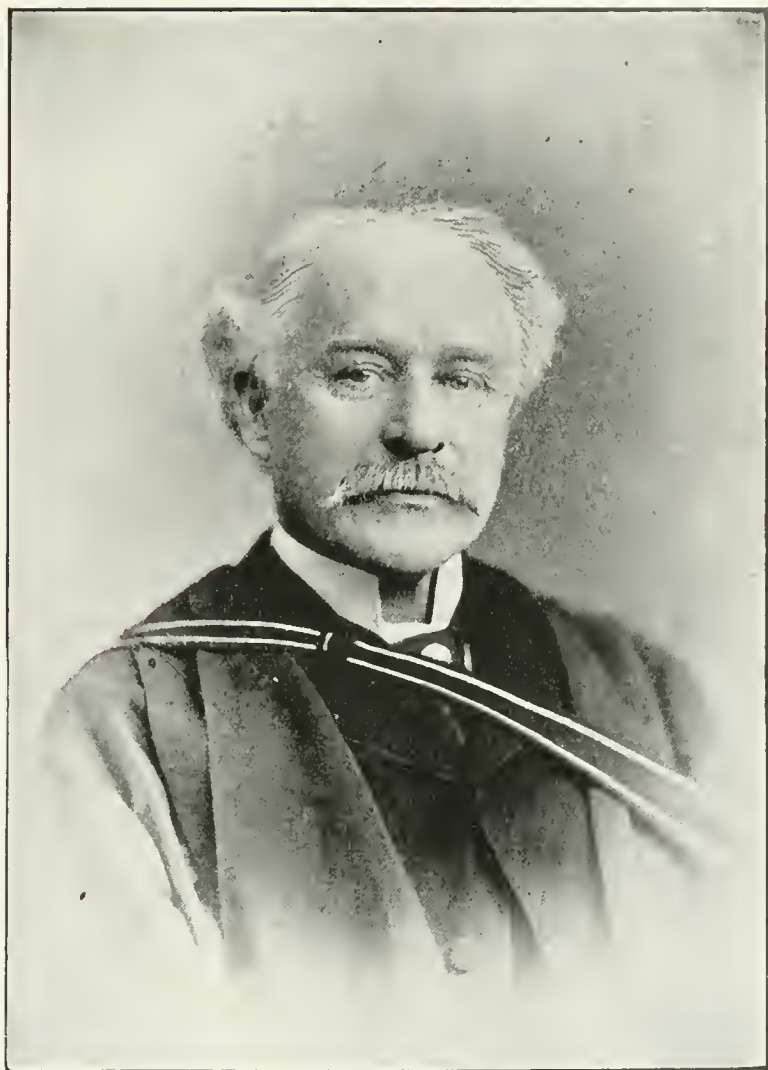
PIONEER DENTAL JOURNALIST OF CANADA. THE FATHER OF CANADA'S NATIONAL GAME "LACROSSE."

William George Beers died at his residence in Montreal, December 26, 1900, aged 57 years. He was born May 5, 1843, in the city of Montreal and obtained his early education at Lower Canada college and Philip's school, Montreal. His training for the profession of his choice was obtained in the office of Dr. Dickenson, of Montreal, after which Dr. Beers entered upon the practice of dentistry in his native city in 1865. In addition to the L. D. S. degree of the Province of Ontario in 1870, and subsequently the same degree in England, at the affiliation of the Dental College of the Province of Quebec with Bishops College, Montreal, the degree of D. D. S. was conferred upon him.

On November 27, 1867, Dr. Beers was united in marriage with Mary Elizabeth Hope, of Kingston, Ont., who, with their two sons, Arthur Hope Beers, M. D., C. M., D. D. S., L. D. S., and James Crawford Beers survived him.

Dr. Beers was a prime mover in the struggle for the advancement of the dental profession in the Province of Quebec in a legal and educational sense, and to his untiring and disinterested advocacy of an incorporated profession is largely due the high status of dentistry in that province. For many years he served on the Provincial Dental Board of Examiners as secretary and president at a time when this work was entirely a labor of love.

The difficulties of establishing a college were largely increased by the necessity of having lectures given both in English and French. Dr. Beers was for several years a lecturer in the college, and the esteem in which he was held by his colleagues is evidenced by the fact that he held the position of Dean of the Faculty until he voluntarily severed his connection with the college. He was an honorary member of nearly all the provincial dental societies in Canada, and a corresponding member of several British and American societies. He was ever a forceful, fearless writer on dental subjects, and was widely known in dental circles not only in his own land but throughout the English speaking world, enjoying the personal friendship of such men as Sir John Tomes



W. Geo. Baer

and Sir Edwin Saunders in England, as well as many of those who have moulded the thought of the profession in the United States.

Dr. Beers' characteristic generosity is well illustrated by the donation of his splendid dental library, consisting of over five hundred volumes to the Royal College of Dental Surgeons of Toronto.

The editorial pages of "The Dominion Dental Journal" for twelve years, and also those of "The Canadian Journal of Dental Science" back in the seventies are the best samples of Dr. Beers' trenchant style and of his zeal for the advancement of his profession. He never wearied berating the quack, and it is interesting to note, among other advanced ideas advocated years ago, that in 1889 an appeal was made by him for a Dominion Dental Association, having for its aim the securing of reciprocity between the provinces in the matter for diplomas, a question that has since engaged the thought of those interested in dental education throughout Canada, and which has since become an accomplished fact.

"The Canadian Journal of Dental Science," edited and published for several years by Dr. Beers, was the first attempt at dental journalism in Canada, and had a large circulation, not only in Canada, but also in the United States and Great Britain.

This journal was first published in 1868, Vol. 1 Nos. 1-5 appeared at Montreal. Nos. 6 Vol. 1 to end of Vol. II at Hamilton. Vol. III appeared after a break of six months, in November, 1870, at Ontario and Quebec, and after three months at Montreal until the journal ceased to appear in 1872. In 1877 it reappeared as a quarterly, in Montreal. Of this series only a few numbers came out.

Dr. Beers' life outside his profession was one of versatility. He was a man of many talents and inaugurated many important movements. He was above all else a patriot, both for profession and country. "Here is a picture of the Queen, God bless her," he said, as he would present a coin to a child who had done him a service. Although a most amiable and peaceable man he was always ready to defend the honor of the Queen and her country, not only in private life, but on the field of battle. During the Fenian raids in 1866 and 1870, Dr. Beers served at the front, being one of the original members of the Victoria Rifles. He organized No. 6 Company, largely from the old Beaver Lacrosse Club. Passing through the ranks he retired with the rank of Captain in 1881, and subsequently became a member of the Victoria Rifles Reserve. He did not hesitate to express himself on any national question. He was also talented as an orator and made several impressive political speeches, also frequently on the floor of the American Dental Association of which he was

a member. When there was a movement among certain classes in Canada for annexation to the United States his pen was wielded vigorously in favor of British connection. He said a few weeks before his death, "I would teach a boy, the Lord's prayer first, and "God Save the Queen next."

In the athletic field Dr. Beers was a prominent figure, and is known throughout Canada as "the father of lacrosse," Canada's national game. He first saw it played by the Caughnawaga and St. Regis Indians, and saw in it a game well calculated to develop the youth of Canada. He formulated the first set of rules for the game which are practically the rules in use today. He also wrote the first book on the subject of lacrosse, a work which has the foundation of all succeeding works on the game and has not been surpassed by any writer since.

In 1876 he organized and captained a team of Canadian and Caughnawaga Indian lacrosse players who visited England, Ireland and Scotland.

These teams consisted of the Montreal Lacrosse Club and The Big John Team, of Caughnawaga Indians. They toured the United Kingdom and the game attracted much attention. Through the organizing ability of Dr. Beers who succeeded in interesting not only the young men of Great Britain, but brought the game favorably to the notice of the gentry and nobility. By royal command they played before the Queen, who presented each player with a photograph of herself, bearing her autograph, and entertained the team at luncheon at Windsor Castle.

In 1882 a second lacrosse team toured Great Britain under his management. Successful as was the trip of 1876, it did not satisfy Dr. Beers' ambition in this direction, and in 1882 he set about organizing another trip for the following year, upon a larger and more comprehensive scale, and with higher aims than the former one. His first step was to secure the aid of the Dominion Government, and through the then Governor-General, the Marquis of Lorne, and the Princess Louise, the assistance of the Prince of Wales and the British Government. His aim was not only to play lacrosse with gentlemen and professional Indian players, but to utilize the tour to further emigration from Britain to Canada by distributing amongst those who attended the matches, literature about the capabilities and resources of the Dominion. This literature consisted of 500,000 illustrated papers (containing some 50 pages), which had been prepared by Dr. Beers himself, but which was printed and paid for by the Government of Canada. These were all distributed in England, Ireland and Scotland, and the result of the teams' visit in several places was the formation of emigration societies for the express purpose of sending those

who wanted to leave the Motherland to Canada in preference to any country not under the British flag.

Dr. Beers was widely known to magazine readers as a writer on Canadian sports and pastimes, contributing series of articles to the leading American magazines, among others to "Lippincott's," "Scribner's" and "Century." He was the only life member of the Montreal Amateur Athletic Association, and the honorary life president of the Montreal Lacrosse Club. He was one of the founders of the Canadian National League.

At his funeral, which took place on December 28, 1900, the members of the Montreal Athletic Association, Victoria Rifles Reserve, No. 6 Company of the Victoria Rifles, and the different Lacrosse and Snowshoe Clubs were in procession. Commenting on his death, a Montreal daily summed up his career: "A well known dentist, a fearless patriot, a famous athlete, an efficient militia officer and a much respected citizen has passed away in the person of Dr. William George Beers."

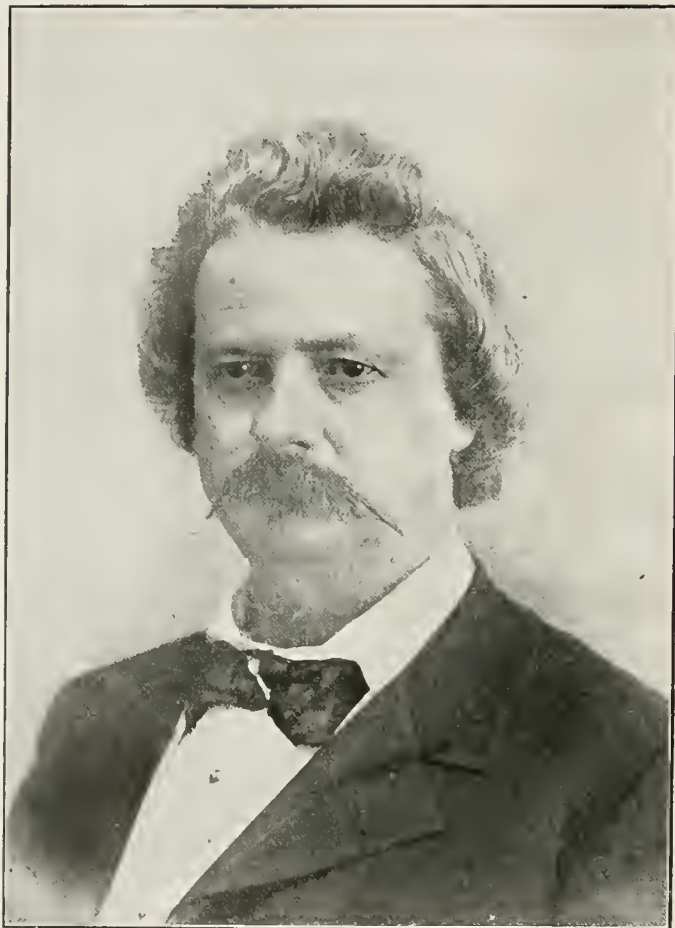
JOHN JOSEPH RAVENSCROFT PATRICK, D. D. S.

ANTIHOPOLOGIST, ETHNOLOGIST, ARCHEOLOGIST, GEOLOGIST AND COMPARATIVE
ANATOMIST.

John Joseph Ravenscroft Patrick was born in Liverpool, England, February 6, 1828, from where, as a boy he moved with his father's family to Belfast, Ireland. When he was fourteen years of age, his parents, with their family, emigrated to this country, settling first in New Orleans, removing afterwards to Louisville, Ky., and again to Keokuk, Ia., where his father Dr. Hugh Patrick, a physician, died in 1841. Young Patrick thought at one time of following in the footsteps of his father, and to this end took a course of lectures in McDowell Medical College at St. Louis, but having a decidedly mechanical turn of mind, and believing that his mechanical ability, which had been developed by an apprenticeship of some years to a jeweler and diamond setter, would be of greater service in the practice of dentistry, he took up that study in the office of his brother, Dr. Hugh Patrick, and commenced practice in St. Louis about 1850, associated for a time with Dr. McKellops.

In 1853, Dr. Patrick removed to Belleville, Ill., where he prosecuted the practice of dentistry till, in the fall of 1862, he enlisted in the One Hundred and Thirtieth Illinois Infantry, and served with his regiment until its consolidation in January, 1865, with the Seventy-seventh, having in the meantime been promoted to the captaincy of Company G, 130th Illinois Infantry, he went through the siege of Vicksburg and with General Banks, second expedition up the Teche river, in Western Louisiana and was under General Ransom in Texas, and at the siege of Jackson, where he was wounded when he resigned from the army, and resumed the practice of dentistry at Belleville, continuing until his last illness.

John J. R. Patrick was one of the notable figures in the history of dentistry of his day and generation. While working earnestly and faithfully in the practical field of his chosen profession, he early felt the need of a wider basis of real understanding of the problems which underlie the practice of dentistry and he toiled incessantly to contribute his share to their solution. Per-



J. P. R. Patrick.

haps to his clear exposition of the facts, more than to any other one man's efforts, is due the final dispersion of the myth that dental caries is a disease of modern origin. He showed conclusively by painstaking examination of thousands of prehistoric skulls, which he dug from the mounds surrounding Belleville and in Mexico, that the dentures of the ancient races were afflicted by the same sort of dental decay as are those of the present inhabitants of the world. So conspicuously well had his work in this direction been done, that the American Dental Association made him the curator of the great investigation which it set on foot to examine all the available pre-historic crania in America. The work was carried out under his direction, the final report, embracing the detailed tabulation of the dental characteristics of many thousands of dentures, having been printed in the Transactions of the Association for 1895.

On the practical side of dentistry Dr. Patrick also did notable work, as attested by a number of useful inventions with which he enlarged the armamentarium of the dentist. Among these may be mentioned his well-known devices for the regulation of teeth, a system for crown work, die plate, and a swaging press. He was an expert manipulator of gold as a filling material, also in the use of the blow pipe.

Besides his labors in behalf of his profession, Dr. Patrick's thirst for knowledge led him into other paths. He was a recognized authority on ancient dental history and dental archeology, and his work in the departments of general archeology and ethnology made him known to scientific men the world over. He surveyed the great Cahokia mounds in Illinois, and made models of them which are now in the collections of the Smithsonian Institution and other similar institutions in Europe. He made several large archeological collections, the most important of which, together with his original survey drafts of the Cahokia mounds, is now in the possession of the Missouri Historical Society at St. Louis and known as the "Patrick Collection." Dr. Patrick was also for many years the correspondent for his section, on matters relating to ethnology and archeology of the Smithsonian Institution and various similar bodies in Europe. He made a choice collection of Indian pottery, ceramics, war implements and etc. He lectured on Comparative Anatomy at the Missouri Dental College, St. Louis, and the Dental Department of the University of Iowa. He received the honorary degree of D. D. S. from the Missouri Dental College.

In whatever he undertook to do he was a tireless worker. No detail was too deeply hidden to be searched out, or so trivial as to be overlooked, if it had a possible bearing on the subject under investigation. As is common among

men of great ability, he was of modest demeanor, but of positive convictions. He never made up his mind until he had investigated and *knew*; but when he had reached a conclusion he was ready and able to defend it against all comers, or to take the aggressive if that course would better spread the knowledge of truth. He was a ready speaker and skilled conversationalist. He published a number of monographs and contributions to dental and other periodicals, and was a prominent character at the principal dental gatherings of the country, where his intimate and positive knowledge of whatever subject he discussed gave to what he had to say a peculiar value and interest. He collected a splendid general and professional library.

Of genial disposition, unassuming ways, and invincible courage he gained many friends. He was both *bon-vivant* and *racanteur* and one of the most congenial and entertaining men at the dental meetings in the old days.

Dr. Patrick was a member, honorary or active, of many societies, dental and other. Among them the Illinois State Dental Society, of which he had been President; Iowa State Dental Society; Odontological Society of New York, Missouri State Dental Association, which he joined 1874; First District Dental Society of the State of New York; Mississippi Valley Association of Dental Surgeons; American Dental Association; St. Clair Medical Association of Illinois; American Ethnological Society of New York, and Anthropological Society of Washington, D. C. He was also a member of the Grand Army of the Republic, and of the Military Order of the Loyal Legion of the United States.

Dr. Patrick was twice married, January 5, 1853 at Lebanon, Ill., to Miss Jane Johnson, who died, and on March 15, 1895 to Miss Anna Rischar, who survived him.

He died at his residence in Belleville, Ill., April 10, 1895, in the sixty-eighth year of his age.

CORYDON PALMER, D. D. S.

PROBABLY THE OLDEST PRACTICING DENTIST IN THE WORLD.

At the Fourth International Dental Congress meeting, 1904, one of the members who was shown marked consideration on account of his long service and skill in dentistry, was Dr. Corydon Palmer. For many years Dr. Palmer has enjoyed a reputation as one of the most eminently skilled gold operators in the profession.

Born in 1820 at Warren, Ohio (where he has practiced his profession continuously), of a long line of English ancestry, who came to America twenty years before his birth, he was raised and schooled in his native village, and like many other of the pioneers "*picked up*" dentistry and by perseverance and natural ingenuity, developed a wonderful talent.

In early life young Palmer was an apprentice to a jeweler, whose trade he mastered. This aided materially in making him the adept he afterwards became in making his own instruments, and in finished operations on the teeth. It is stated that if he wanted a special instrument for the case in hand he would leave his patient in the chair and go into the laboratory and make it.

He was of an inventive turn, and, it is claimed, invented the first complete set of cohesive gold instruments. Many forms in use to-day are patterned after his designs. He was for a number of years an advisory expert, to examine and perfect the new instruments placed on the market by The S. S. White Dental Manufacturing Company. There is a fine collection of his work in oil, illustrating prosthetics, at the Baltimore College of Dental Surgery. As above stated Dr. Palmer was one of the expert manipulators of gold foil of his day, equalled by few, excelling in cohesive contour work, and in the class with Webb, Atkinson, McKellops, and Allport. The latter said, "Palmer was the best filler of teeth in the world." Dr. Palmer also excelled in mounting artificial teeth on gold base. He was a frequent attendant at Dental Society meetings and a contemporary of Watt, Taft, Taylor, Atkinson and other good men who have gone to their reward.

For years he has been a member of the Board of Trustees and was at one



Corydon Palmer

time a teacher of operative dentistry in the Ohio College of Dental Surgery, which institution conferred upon him the honorary degree of D. D. S. He is a member of the Ohio State Dental Society and was prominent in the proceedings of the Mississippi Valley Association of Dental Surgeons, the American Dental Association, and other societies.

Dr. Palmer has tutored many men in dentistry who have been a credit to him; among them, Royal W. Varney, and his two sons, Delos and Eugene Palmer, who are practicing dentists in New York City.

Dr. Palmer has been known as an "*eccentric genius*" and is so extremely modest and adverse to publicity that it is almost impossible to obtain any facts regarding his long and interesting career. Bent with age, yet hale and hearty at eighty eight years of age, he continues in practice, until this date (1908.)

WILLIAM CARY BARRETT, M. D., M. D. S., D. D. S., LL. D.

AUTHOR, TEACHER AND DENTAL ENTHUSIAST.

W. C. Barrett was a son of Rev. William and Hannah Cheney (Tanner) Barrett, and was born on May 13, 1834, in Monroe County, New York. His early education was obtained in the public school and later after a thorough academic education at Kingsville Academy, Ohio, Carey Seminary, N. Y., and Yates Academy, N. Y., for some years he was engaged in the newspaper business and as teacher in different literary institutions in the state of New York. In 1863 he began the study of medicine, but in 1864 he changed to that of dentistry, receiving the degree of Master of Dental Surgery from the Dental Society of New York, in 1868. He began dental practice in the village of Warsaw, Wyoming County, N. Y., and remained there until the spring of 1876, when he moved to Buffalo, and in 1887 again took up the study of medicine in the Medical Department of the University of Buffalo, graduating with the degree of M. D. in 1880. He also attended lectures in the Pennsylvania College of Dental Surgery, in Philadelphia, and graduated with the degree of Doctor of Dental Surgery in 1881.

After that time he was in the practice of his profession in the city of Buffalo. In 1885 he received the appointment of lecturer on oral pathology in the medical department of the University of Buffalo, his alma mater, and in 1890 was elected to the full professorship. In 1889 he was elected professor of morbid anatomy and pathology in the Chicago College of Dental Surgery, then the dental department of Lake Forest University, and accepted, but still continuing his residence in Buffalo. After that appointment he visited Chicago regularly for the purpose of delivering his lectures and giving instruction belonging to his chair.

Upon the organization of the dental department of the University of Buffalo, in 1891, Dr. Barrett was appointed professor of the principles and practice of dentistry and dental pathology, and was elected dean of the faculty, which position he held at the time of his death. He was also one of the staff of the Buffalo General Hospital, holding the position of oral surgeon in that institution.



H.C. Barrett

From 1880-88 he was the editor of "The Independent Practitioner," a monthly devoted to dental medicine and surgery. In 1888 it was sold and became "The International Dental Journal," and Dr. Barrett retired from journalism, but in 1893 he again entered the field as editor of "The Dental Practitioner" of Buffalo and he held that position till the suspension of the journal, 1898. Dr. A. W. Harlan, his close friend, says of him, "While acting as editor of 'The Independent Practitioner' he did more to promulgate the views of W. D. Miller on the causes of decay of the teeth than any one single force in this country. He was a good editor, careful and painstaking; his proofs were well read and his journal always had something new in its pages. He had had training on a newspaper before he studied dentistry, which was of value to him; and afterwards, in the early years of his practice, he wrote for the press, when it was neither large nor the work lucrative. His papers bristled with his views on all topics, theory, practice, science, education, politics. He always wrote well even though his editorials were sometimes long. He had views and opinions. He was aggressive, he was a good antagonist." Of commanding stature and presence, with an unlimited vocabulary or rhetoric and oratory, he always commanded the attention of his hearers when he arose to speak. He could discuss any topic with skill and intelligence, and was one of the foremost debators of his day. Dr. Barrett made notable collections in comparative dental anatomy, and was an authority on dental archeology and ancient dental history and collected many rare specimens of Etrurian and Phoenician dentistry.

In 1889 Dr. Barrett, while exhibiting some of this treasure-trove, remarked, "These specimens date from about the founding of Rome. They are of more than unusual interest, as they bear unimpeachable testimony on some interesting points connected with the teeth of man. Dentists of today usually entertain the idea that the prevalence of diseases of the teeth is to be attributed to the altered methods of living, to the modes of cooking food, to change in the manner of life, etc. Some years since I had examined about two thousand (2,000) ancient skulls, more especially with reference to evidences of dental disease. The examination at once demonstrated conclusively that all the diseases of modern life, except syphilis, were as rife in ancient times as today. Two of the teeth I have shown you prove the existence of pyorrhea alveolaris in teeth seven hundred and fifty years before the Christian era." (Dental Cosmos, Vol. XXXI., p. 118.) He wrote many valuable papers on dental subjects and published a book, "Barrett's Oral Pathology and Practice," published by S. S. White Dental Mfg. Co., which reached its second edition, and

was a standard text book for dental students in many of the dental colleges, and a hand book for practitioners.

Dr. Barrett was a member of the Medical Society of the County of Erie, of the Buffalo Medical and Surgical Association, of the American Medical Association. He was a member of the International Medical Congress which met in London in 1881; (an honorary vice-president of the same.) Washington, 1887; Berlin 1890, prominent in the second International Dental Congress at Chicago and third Congress at Paris. He was president of the Dental Society of the State of New York, in 1875 and 1876, and elected president of the American Dental Association at Minneapolis in 1885. He was most active in The Old American Dental Association and its successor, the present National Dental Association. He served as chairman of one or more of the sections for over twenty years and on various committees. His last duty for The N. D. A. was his selection at the 1902 meeting at Niagara Falls to visit Stockholm, Sweden, as one of the three envoys delegated to officially invite the *Federation Dentaire Internationale* to hold the Fourth International Dental Congress in St. Louis, 1904. He was an active member of the F. D. I. and took a prominent part in their meetings. He also was one of the foremost workers in the National Association of Dental Faculties and for years chairman of the Foreign Relations Committee. It was mainly through his personal efforts, the American D. D. S. degree was recognized abroad. In recognition of this and other important services rendered the association and profession The Lake Forest University conferred the degree of L. L. D. upon him in 1899. He was a member of the American Microscopical Society, Delta Sigma Delta Fraternity, and honorary member of many state and foreign professional associations, also a member of the Masonic fraternity, and was a Knight Templar. He was also a musician, and was at one time in charge of Asbury Church choir, at Buffalo. He was a collector of music, books, guns and swords. Professor Barrett had traveled in nearly all the countries of Europe, having crossed the ocean repeatedly for that purpose. He studied in various hospitals there, and made many additions to his pathological collection while so engaged. This collection is now the property of the Dental Department of the University of Buffalo. He was married in 1857 to Amelia Harris Ryerson of Port Ryerse, Ontario, who survived him.

He went to Germany to take the baths to benefit his defective health and died at Nauheim, August 22, 1903, his remains were brought to Buffalo and there interred.

CLARKE LAMOTTE GODDARD, A. B., A. M., D. D. S.

ORTHODONTIST.

Died in San Francisco, California, March 30, 1905, in his fifty-sixth year.

Dr. Goddard was born in Beloit, Wis., on June 26, 1849, being the son of Elisha and Julia Goddard of that city. He was educated in the public schools of Beloit, graduated from the high school in 1868. He entered Beloit College in the autumn of that year, graduating with honor in 1872 with the degree A. B. He then decided to prepare himself for the profession of dental surgery, matriculating in the Philadelphia Dental College, in October, 1872, and after completing the course with great credit to himself and honor to his alma mater, he was graduated in the class of 1874 with the degree D. D. S.

Immediately upon his graduation he became associated in practice with Dr. A. E. Brown of Chicago, Ill., but at the end of a year severed his connection and removed to San Francisco, California, arriving in that city March 17, 1875. In the same year his alma mater conferred upon him the A. M. degree. For about a year after his arrival in San Francisco he was associated in practice with Dr. J. L. Cogswell. Later he entered the office of Dr. H. E. Knox, remaining with him for about eight years. In 1884 he opened an office under his own name, where his large acquaintance, superior attainments, and professional skill soon won for him a large and lucrative practice. During the last fifteen years he had associated with him in practice his nephew, Dr. H. D. Noble.

Dr. Goddard was a man of studious habits, of an analytical turn of mind, of great mechanical ingenuity, and superior manipulative skill, all of which combined to make of him a practitioner of pre-eminent ability. His studies were, however, never wholly confined to his profession, for he was a man of broad culture and large general scientific attainments. He, with others, was instrumental in the organization of the Dental Department of the University of California which was incorporated in 1881.

He was elected by the Board of Regents of the University of California to the professorship of mechanical dentistry, and retained this position from



A. L. Goddard.

the opening of the dental department in 1882 to the end of the college year 1889, when he resigned that chair to accept the professorship of orthodontia, a subject he was greatly interested in, and an authority upon. He held this chair from 1889-1902. He severed his connection with the dental department at the close of the college year 1902 much against his own inclinations and the wishes of his associates after a faithful service of twenty years. This step was taken as the result of his physical condition. Only his intimate family associates were cognizant of the physical condition which forced him to lay down his college work, consequently his sudden and untimely demise came as a great shock to his associates, friends, and acquaintances.

Dr. Goddard was endowed with qualities which made him a teacher par excellence. He possessed in an unusual degree the ability to impart instruction and the power to stir enthusiasm in his students for any subject that he might present to them. As a consequence he was always a popular teacher, and he succeeded in impressing his genial personality and studious habits upon his students to such a degree that they became thereafter his faithful emulators and his life-long friends.

As a professional man and a teacher he was always found in the ranks of those who were striving for higher professional ideals and for broader culture as a pre-requisite for entrance upon professional study. It was largely through his efforts that the preliminary requirements for entrance to the dental department of the University of California and the length of the academic year were constantly kept a little in advance of the requirements of most other dental schools. His contact with his professional brethren was always that of the hightoned ethical gentleman. His discoveries and inventions along the lines of his profession were always freely given to his confreres for the benefit of humanity.

Dr. Goddard was a man of more than ordinary literary attainments, being a frequent contributor to periodical dental literature. He was one of the collaborators of Kirk's "American Text-book of Operative Dentistry," having prepared for that volume the chapters on the "Management of the Deciduous Teeth" and "Orthodontia Exclusively as an Operative Procedure." At the time of his death he had just completed for the use of students a hand-book on Orthodontia which it is hoped his heirs will have published. During the later years of his life he devoted considerable time to the study of comparative odontology, having gathered together a large variety of skulls and teeth. He had also instituted a series of studies of the cingules and cusps of the human teeth, with a view to clearing up certain questions relating to their evolution. These studies, it is to be regretted, were still incomplete at the

time of his death. He read a number of valuable papers before The National Dental Association, the California State Dental Society, both of which he was a member of. He was a member of the Delta Sigma Delta Fraternity, and took an active interest in both its local and national affairs.

He has been frequently honored by the profession, having been elected president of the San Francisco Dental Association in 1891; president of the Oakland Dental Club in 1898; chairman of Section VII of the World's Columbian Dental Congress, held in Chicago in 1893; chairman of the Dental Section of the American Medical Association held in San Francisco, Cal., in 1894; vice president of the National Association of Dental Faculties in 1893; president of the Pacific Dental Congress held in Portland, Oregon in 1898, and at the time of his death was a member of the Committee on Essays of the Lewis and Clark Dental Congress to be held in Portland, Ore., in July, 1905.

He was very fond of travel, having visited Europe several times with the various members of his family. Photography was his hobby, and he indulged his love of the beautiful by making many photographs of scenes that appealed to his esthetic sense.

Dr. Goddard was married to Miss Louise Bunker of San Francisco, August 30, 1881. This union was blessed by a son Malcom and a daughter, Florence, who with their mother survive him. His was a great nature, and he did much to better his calling.

Principal facts contained in this sketch were obtained from an obituary in the "Dental Cosmos," May, 1905, Vol. XLVII, page 634.

CHARLES CURTIS CHITTENDEN, D. D. S.

A CHAMPION OF HIGHER DENTAL EDUCATION.

The many friends of "Charlie" Chittenden were pained to learn of his death, which occurred at his home at Madison, Wisconsin, December 15, 1905. Although he had been in ill health three years, and those who knew him best doubted if, on account of his weakened constitution, he could weather the storm much longer, yet the news of his passing brings a shock of pain and sadness to those who knew and appreciated him for his many virtues and charming qualities.

For many years Dr. Chittenden had been a prominent character in dental affairs both locally and nationally. He was a man of broad training, with the courage of his convictions, and never hesitated to express his opinion or to enter into any fight he thought was just. Of all men in the profession who have advocated higher educational standards none has been more enthusiastic or more ardent than Dr. Chittenden.

Dr. Chittenden was born among the hills of Nunda, Livingston county, New York, May 10, 1842. He was the son of Dr. Nelson and Sophia B. (Fuller) Chittenden, both of New England birth and breeding. For the first thirteen years of his life he resided at the place of his birth, where he acquired a preliminary education at the country schools. His father was an efficient dentist. Seeing the possibilities in the western country he went to Madison, Wisconsin, in search of health, where he entered into practice in 1854. In 1855 he was joined by his family. Young Charles evinced mechanical genius at an early age. His father was in ill health for several years, and when twelve years of age Charles began to assist him with gold plate and other work. This laid the foundation for the great skill which he later developed in dental prosthesis. After a long course of tutorage with his father, he began regular practice in 1863, entering into practice with his father. This association lasted until 1873, when his father died. From that date to 1905 he practiced alone, until his partnership relation with Dr. Wm. H. Mueller began, which relation continued until Dr. Chittenden's death.



Chas. C. Chittenden

Dr. Chittenden attended the Madison High School when a boy and later, the University of Wisconsin. In 1866 he was graduated from the Ohio College of Dental Surgery at Cincinnati, and was at this period also a student of the Miami Medical College of Ohio but did not complete his course.

He was exceptionally active in dental society work, and was one of the founders of the Wisconsin State Dental Society, of which he served several times as president. He was largely instrumental in passing the first dental law enacted by the Wisconsin Legislature, and was appointed a member of the first examining board and served almost continuously, with the exception of two years, as its president.

Dr. Chittenden was one of the prominent workers in the National Association of Dental Examiners. It was here he became the foremost advocate for a higher standard of preliminary requirements in dental education, and was much respected for his sage advice and executive ability. For several years he served as chairman of the committee on colleges, and it was mainly through his persistent efforts that a higher standard was required and adopted. Dr. Chittenden was elected president of this association and served as its presiding officer in 1900.

He was equally prominent in the National Dental Association and served for a number of years on the executive council, and was elected president of the association at Asheville in 1903, serving as presiding officer at the session of the association held during the Fourth International Dental Congress in St. Louis.

Dr. Chittenden was also one of the organizers and president of the Madison Odontological Society, and member of the Southern Wisconsin Dental Association, the Chicago Odontographic Society, and the American Medical Association (Section of Stomatology) before which he read a number of valuable papers on the status of American dentistry, past, present and future.

Dr. Chittenden was married on May 18, 1867, to Miss Virginia Carr Winter, of New York. She died on the 5th of March of the following year. He is survived by three sisters. Mrs. Flora E. Davendorf, of Berlin, Wisconsin; Mrs. L. C. Stewart, of Waupun, and Miss Kate A. Chittenden, of Madison.

When the war of the rebellion broke out, "Charlie," as he was familiarly called, enlisted in the Eleventh Wisconsin Infantry at Madison, October 23, 1861. He did not shoulder a musket; Uncle Sam had other work for him. He was fond of music and his ability to play the fife rendered his services of value as fifer in the regimental band. Many a time his weary comrades were cheered by his inspiring rendition of "Yankee Doodle" and other patriotic airs. He was with the regiment at Sulphur Springs and Pilot Knob. Mis-

souri; at Jacksonport, on the White River; Batesville and Helena, Arkansas. Dr. Clittenden's war career ended November 24, 1862, when, after a year and one month of service, the regimental band was mustered out. It is a unique coincidence that Dr. Clittenden and a comrade, "Johnny" Nichols, played the fife and drum from the dome of the Wisconsin state capitol when the civil war broke out and again when the Spanish-American war was ended. He was a member of the G. A. R., the Masonic Order, the Knights Templar and other like organizations.

Music was Dr. Clittenden's greatest pleasure. It manifested itself when he was a young fifer in the Eleventh regiment. Later, it was expressed in other ways, and for some thirty years he presided at the pipe organ in the Episcopal church, at Madison, of which he was a member. At the annual meetings of the N. D. A. he frequently entertained his friends with selections at the piano, of which he was a master.

Dr. Clittenden was a man of genial disposition, which won for him a wide circle of friends. In days gone by, his love for amusement often led him to take part in many private theatricals in Madison, and when holiday time came around he often assumed the role of St. Nicholas at Christmas festivities. Even after he had passed the three-score mark there remained a keenness and a brightness in his eyes which advancing years did not dim. Time sprinkled a tinge of gray upon his head, but it never touched the youth and lightness of his heart. He was the most gracious of men, always courteous and suave even to chivalry, reminding one of a knight of old, and scrupulously immaculate in his dress. Dr. Clittenden was one of the most lovable, companionable men the writer has ever known.

He had the courage of his convictions, and made the necessary number of enemies to make life worth living. All but those who are narrow in mind or biased with prejudice can but give "Charlie" Clittenden credit for the good work he did, for his honesty of purpose, for his loyalty to his friends, and for his lofty ideals. He reveled in the enjoyment of working in and for his profession, which he loved next to his family.

"He stood four square to all the winds that blow,
And even his failings lean'd to virtue's side."

NORMAN W. KINGSLEY, M. D. S., D. D. S.

THE FATHER OF MODERN ORTHODONTIA, AUTHOR, ARTIST, SCULPTOR AND INVENTOR.

Norman W. Kingsley was born, Oct. 26, 1829, at Stockholm, St. Lawrence County, N. Y. The son of Nathaniel and Eliza Williams Kingsley, descendant, in direct line, from one Ranulph, a Saxon, who in 1166 was appointed Keeper of the King's Forest, Dela Mer, and by its "lea", the Keeper was known as Ranulph de Kings Lea, and for a few generations the descendants retained the French prefix, which was the court language of the age. The first ancestor, John Kingsley, came to this country, landing at Dorchester 1634.

Amos Kingsley, of the fourth generation in America, was a tanner settled at Windham, Connecticut, and some of his descendants during the five generations since have followed the occupation of making leather or its manufacture—first in Berkshire county, Massachusetts; then in Rutland county, Vermont, and at the present time in Tioga county, Pennsylvania.

Joshua Kingsley, the father of the third of the name of Nathaniel settled in Pittsfield, Vermont, where Nathaniel was born, in 1803, and he, after his marriage, went to the then frontier (St. Lawrence county, New York) and tried farming, but, tiring of that, returned to Vermont when Norman was about four years old. Three or four years of his childhood were spent in Poultney, Vermont, where Horace Greeley only a short time before had learned his trade as a printer in that place.

Young Kingsley received his education at the District school, at which he served as janitor, for three months for 50 cents, receiving his pay at the end of the term in 50 copper cents. This was the first money he ever earned. The following year he was employed the same way, and with his first dollar purchased a copy of "Comstock's Philosophy." This stimulated his tastes for mechanic arts and from the knowledge thus gained, which he put to a practical test, led him to inventing wind mills, saw mills and water wheels propelled by a small stream that flowed near his home. He also experimented in making cog wheels from braid spools, also attempted to make a clock, having



Norman W. Kingsley

no tools with which to work but a pocket knife. June, 1848, his father and mother and the family of six children traveled by a canal boat, the only means of transportation, to Bradford county, Pennsylvania. Here the father bought a small farm in a forest, which he cleared, and erected a log cabin. Young Norman assisted in this work and during the winter attended the academy at Troy, N. Y. At the age of fifteen he went to clerk in a store in Elmira, N. Y., at a salary of 50 dollars per year and board. Half of this was paid to his father. Following this he was employed as a bookkeeper in the office of a foundry and machine shop. Here a demand was made upon the establishment, by lumber men, for brands with which to mark their lumber. These were made of copper castings with a carved pattern in wood bearing the name required. Young Kingsley conceived the idea, and carried it out, carved the whole alphabet in wood, and when the brand was wanted to slide the letters together in a groove for the pattern of the brand, thus doing away with special carving. He carved the letters in the office between other duties, after that all orders for brands were supplied after his invention. At the end of three years, he returned to Troy, and became a clerk in a large general store which dealt with all sorts, merchandise, farm products, live stock, grain, as well as did a general banking business, also conducted a post office, of which he was acting postmaster. Here he acquired an excellent business training. In 1848 he began the study of dentistry with his uncle, A. W. Kingsley of Elizabeth, N. Y., a graduate in medicine, who agreed to take him as a student for six months for 50 dollars, but not to teach him to make "block teeth". He was immediately inducted into the laboratory, given a plaster model of a bicuspid tooth, a strip of gold, and told to fit a clasp to it. Possessing considerable natural talent, he did this successfully, and soon after he was entrusted with every operation in the laboratory except the carving and baking of block teeth, which at that period was a secret process. Young Kingsley watched his uncle studiously, and while his uncle was away on a holiday availed himself of his absence, arranged and carved a set of teeth, following the method, and using the material which his uncle had used. These he placed in a furnace half baked, (biscuited) and hid away until another holiday of his uncle would permit him to enamel and bake them. Upon his uncle's return, discovering the furnace had been used he inquired the cause. Upon being shown the result of young Kingsley's work, it resulted in all the block teeth that were required in the office to be carved by him while he remained there. He was not allowed to watch his uncle fill teeth, but shown in the laboratory how a tooth out of the month was to be filled, also the cutting of foil into strips, folding them in, condensing by wedging, etc. During the following sum-

mer while his uncle was on a brief vacation he took charge of the practice. At this period he made the acquaintance of Dr. Eleazer Parmly, a most distinguished dentist of New York City, who received him kindly as also did his cousin, Dr. Jahiel Parmly, a noted mechanical dentist. These two gentlemen's acquaintance ultimately proved to be of much value to him. In 1850 he located at Oswego, N. Y., and entered into partnership with Dr. B. C. Lefler. This association soon terminated however. He moved across the street, fitted up an office, got the endorsement of some prominent citizens, painted his sign, made his office furniture with his own hands, and announced his readiness for business both by newspaper and hand bills. Here he prospered. Through the influence of Dr. Solymán Brown who conducted a dental depot in New York City who had seen some of Kingsley's gold plate work. Young Kingsley went to New York, May, 1852, and became a partner of Dr. Brown. This he continued one year then located at 858 Broadway to establish an independent practice. His past skill in carving porcelain teeth soon gave him a reputation along this line. During the World's Fair at New York and the Crystal Palace, May, 1853, he exhibited some of his porcelain carvings of full and partial sets of teeth mounted on gold, which were practical cases, having been in use in the patients' mouths. Drs. E. Parmly and Trenor of New York, and Dr. Buckingham of Philadelphia were the judges and awarded him a gold medal for his work. This success caused him to make an exhibit at The Paris World's Fair, 1855, from which he also received gold and silver medals. His perfecting and giving freely to the profession his ingenious gold obturators and artificial velum of soft vulcanized India rubber was probably his most important contribution to his profession. It won him the plaudits of the dental and surgical world and the thanks of many formerly afflicted patients, also many honors such as diplomas of merit, honorary membership in many dental and medical societies at home and abroad, gold medals from the American Dental Convention (1863) the Odontographic Society of Pennsylvania 1864. In 1864-5 the London Medical and Surgical Society and the French Academy of Medicine paid him the tribute of "having made a most merciful and important invention". 1859 saw the beginning of the most important event of his life. In speaking of his first cleft palate case, Dr. Kingsley says, "A gentleman living in Virginia whose daughter was afflicted with a bad case of double hare lip and cleft palate sought relief by consulting dentists in Richmond and was referred to Baltimore and from there to Philadelphia; from there father and daughter came to New York with a letter to Mr. Jones at the Dental Depot, asking Mr. Jones to send them to some one who treated such cases. Mr. Jones asked my uncle, who was present

at the time, if he knew any one, as Mr. Jones said he did not. My uncle replied that he did not, but if any could do anything for her his nephew could, and with that Mr. Jones sent them in charge of one of his clerks to me. Nothing daunted, the old self-reliance came to my support. I promised no results, but would do all I could. Now I had never seen a cleft plate; all I knew was what I read incidentally of such deformities, but never having seen one, took no interest in the subject.

"Here was one of the worst cases ever seen but I did not know that, and as "fools rush in where angels fear to tread" I did not hesitate an instant. Naturally, being a dentist, I must have a model to work to and being an adept in using plaster for impression I used that material. It required consummate skill but I was in perfect command of my nerves and the patient had confidence in me. The impression was a success and the resultant model showed cleft maxillae, turbinated bones, vomer and soft palate throughout its extent including bifurcated uvula.

"I have sometimes wondered if this was accomplished by skill or was just "dom luck" as the Irishman put it. My first conception of an instrument was along the lines of an obturator and I potted along two or three weeks to make something that would fill the gap entirely and would be tolerated, in the meantime hunting up all the literature I could find on the subject; but whatever I found was either too elementary or I could not understand it.

"I had read somewhere that a certain Mr. Stearn in London some fifteen years before showed an "artificial velum" of "Caoutchouc" but no subsequent reference to show results. My patient came to me one day and told me that she had learned the address of a man in New York who was wearing something that he had made for himself and with which he spoke very well. I sought him out and found him in a machine shop at work on brass faucets and was dumbfounded to find that he was the veritable "Mr. Stearn of London" and in reality Doctor Stearn, of Springfield, Massachusetts, who had once gone to London to show his "artificial velum" but meeting no encouragement returned to America. Reporting this to my patient, she engaged Dr. Stearn to co-operate with me and he came to my office.

"It required but a brief experience to see that we were working from radically different bases. My perfect model was no use to him and was rejected and he was "trying" to fit something to the gap in the mouth. Co-operation was out of the question and we decided to each work out his plan independently. He carved a mould from wood in which he vulcanized his soft rubber velum, I made a pattern of my velum in sheet gutta percha adapted to my plaster model and made moulds in typemetal to reproduce it. It is not

difficult to understand why mine was accepted on trial in preference to his. Mine could be worn without discomfort, his would require many changes before it could be tolerated comfortably.

"I exhibited patient with the instrument privately to several of the then foremost surgeons of New York, and found myself shortly exploited; in the daily newspaper and most extravagant claims were made for me. For example it was stated that my patient, whose speech had been absolutely unintelligible became "instantly", on the introduction of the instrument perfectly normal.

"A few weeks after that I was surprised by a call from a young man who had just arrived from Venezuela, where he had read a paragraph in a newspaper of my success, and being similarly afflicted, sailed without delay for New York. I made no effort to advertise myself, but occasionally a patient would come.

"In the program of the American Dental Convention to be held in Saratoga, in 1863, it was announced that "cleft palate" would be discussed. Of course I was anxious to know what others had done, and went there to learn. When subject was called, Doctor Atkinson made a few perfunctory remarks, but on my asking a question, which he did not seem able to answer, he said, "The young man seems to know more than I do, let us call upon him." I took the platform and for more than two hours 'occupied the center of the stage.' It was literally ovation."

In 1864 Dr. Kingsley went to Europe armed with letters of introduction from such well known surgeons as Drs. Valentine Mott, and Willard Parker, of New York, and Professor Gross of Philadelphia, who testified Dr. Kingsley had benefited cleft palate patients more than surgery ever had. He appeared before the Odontological Society, of Great Britain, and the London Medical and Surgical Society, both of whom cordially received him.

"The London Lancet" and the "Medical and Surgical Times," both spoke highly of Kingsley and the skill of his invention. This invention he greatly improved upon and simplified, December, 1864. He used this method up to the time of his retirement from practice 1904. He was received with great courtesy abroad as well as at home. In 1871, the Baltimore College of Dental Surgery conferred upon him the honorary degree of D. D. S. for "Scientific investigation of congenital deficiencies of the palate and by the application of a very remarkable artistic skill in the artificial replacement of the same, has demonstrated the high capability of dental art and has rendered invaluable service to this unfortunate class of sufferers."

Another great service rendered to his profession was his immense and highly practicable contribution of modern Orthodontia and through his in-

dividual influence was systematized, made simple and practicable. Without doubt, he is the *Father of Modern Orthodontia*. It was Kingsley who first gathered, in the early day, the then scattered knowledge of that subject, and gave us the first book on Orthodontia ever published. He must be credited as the first to make known the occipital anchorage. He was also the first to successfully "jump the bite." As an author, Kingsley deserves mention. His "*Treatise on Oral Deformities as a branch of Mechanical Surgery*" (1880), has been the only standard text book on the subject yet published, while his other writings will ever be considered valuable contributions to our science. They are as follows: "An inquiry into the Cause of Irregularities in the Development of the Teeth" (New York Odontological Society, 1874), "Civilization in Its Relations to the Decay of the Teeth," (International Medical Congress, 1881), "Surgery or Mechanism in the Treatment of Congenital Cleft Palate" (New York Medical Journal, 1876), "The Mechanism of Speech" (Odontological Society, 1878), "Dentistry Not a Specialty in Medicine" (New England Dental Society), "Cleft Palate" (Connecticut Valley Dental Association, 1894), "The Present Relation of Dentistry to Medicine," "Esthetics of Dentistry," "Civilization and Decay of Teeth," "Dentist's Chair," "Facial Deformity and Treatment," "Regulation with Elastic," "Rhinoplasty and Artificial Noses," "Causes of Irregularity," etc.

Dr. Kingsley was one of the founders of the New York College of Dentistry, which was chartered by the State in 1865. He was the first dean of the faculty, serving from 1866 to 1869, and the first professor of dental art and mechanism. His associates in the organization were Eleazar Parmly, Wm. H. Dwinelle, Edwin J. Dunning, J. Smith Dodge and Faneuil D. Weisse.

Dr. Kingsley also held the important office of President of the New York State Board of Censors of sixteen years. He was president of the Dental Society of the State of New York and president of the First District Dental Society of New York. Of all of Dr. Kingsley's many attainments, the artistic side of his career is the most interesting. His bust of Christ, modeled in 1868, is probably his best effort, art critics pronounce it the best piece of work ever done of its kind. Its inception and production was apparently inspirational. It is said that Dannecker attempted with moderate success, to portray Christ, as the Mediator between God and man. Thorwaldsen's Christ was a more powerful conception, yet sacrificing the manliness of The Messiah in trying to properly bring out His loveliness of face and its character. Kingsley's bust combines both the manliness and gentleness that beautifies the life and character of the Master. It is a composite face of Greek, Roman and Jew intermingling the gentleness of woman, the manliness of man, and the sacred-



Kingsley's Bust of Christ.

ness of a saint. An artistic friend complained on viewing the bust, "It is not a Jewish face." "He was not a Jew," Dr. Kingsley answered. "He had a Jewish mother, but he came not to Palestine, but to the world. I do not believe He had the Jewish features that would inevitably have repelled a Greek or Roman if he approached Him." Rev. Dr. Howard Crosby, appreciating the beauty of this head, used it as a frontispiece to illustrate his book, "The Life of Christ."

Dr. Kingsley produced another work that will live—the bust, in bronze, of the Hon. Whitelaw Reid, while he was American Ambassador to Great Britain. This Dr. Kingsley presented to the Locust Club, of New York, of which Mr. Reid was then president and Dr. Kingsley was a member and director. Dr. J. E. Garretson, the famous oral surgeon, once wrote Dr. Kingsley: "Truly it is not the occupation that honors the man, but the man that honors the occupation—author, sculptor, professional man, so much is given to but few men." Another wonderful and artistic accomplishment of Dr. Kingsley, is his burnt wood reproductions of Rembrandt's famous Dutch portraits. Dr. Kingsley conceived and adapted the laboratory blow pipe, to the production of monochromes, which seem to represent the tone of the original Rembrandts better than any other medium. A number of these Rembrandts and his bust of Christ, illustrate this sketch.

Dr. Kingsley also did some exceptionally fine work in oil painting, silk embroidery work, reproducing delicately shaded landscapes, etc., and also beating brass and copper into base-relief shields, plates and plaques. To visit his old home and office, in New York City, a few years ago and inspect these art treasures, was one of the greatest privileges the writer has ever enjoyed. In speaking of his artistic education, Dr. Kingsley says he had limited training, while he was a clerk in Elmira, N. Y. He did some experimenting in copper engraving, with a graver, borrowed from a local jeweler, and soon required a local reputation as a prodigy. He also made some creditable wood engraving and embellished the pages of the local newspaper. In the house where he boarded, was a portrait bust in plaster, the work of Dr. Solymán Brown, who had sojourned in that place a few years before. This bust excited the admiration and ambition of young Kingsley, and stimulated him to do something in sculptor. He did a creditable plaster bust of his preceptor and uncle and in 1857-1858, and made his first portrait in clay, of the Rev. Dr. S. E. Shepard, then connected with the American Bible Union. This led him to continue at intervals to produce portraits and frequently bas-reliefs. Amongst these eventually developed the excellent busts of Dr. Asa D. Smith, the former president of Dartmouth College, and of Whitelaw Reid. In speaking of his

artistic career Dr. Kingsley says, "While spending a portion of a winter in Florence, Italy, I was a frequent visitor to the studio of our noted countryman, Hirman Powers, who made me welcome and invited me to be present when he was modeling. He had just completed in clay, the model of a bust of Christ and asked my opinion of it.

"I do not suppose that he considered that my opinion was of any importance, but he asked more as a courtesy than otherwise, and courtesy, likewise, required a complimentary answer. I could not tell him the real impression that the figure made upon me, which, considering the lofty character of the subject, was decidedly unfavorable. In no sense whatever, did it measure up to my idea of the character: it was distinctly commonplace, banal; there was not a suggestion of spirituality in the face, of nobility in the figure. I was much disappointed that an artist of Powers' world-wide celebrity should have so low a conception of that wonderful personage; for whatever difference of opinion may exist as to His divine origin, His doctrines and far-reaching influence proclaim that He was superior to the mass of His fellow beings, and I maintain that nobility of soul does not exist in a mean physical tenement.

"To show that I was not alone in my view, I was talking with a distinguished artist in New York, a few years later, and I asked him if he had ever seen Powers' head of Christ, and what he thought of it. He said he had a photograph of the marble, and he had modernized the hair and the drapery, and submitted it to the Chief of the Detective Bureau in New York, and asked if he could place him. "Oh, yes," he said instantly, "He is doing time in Sing Sing; he is a sneak thief."

"The bad impression left upon my mind by the Powers' Christ gave me much thought; I reflected much upon the subject, I tried, by concentrating my mind upon it, to bring a conception of the divine in human form: my soul craved more than I could find in pictures or statuary; a picture, as a whole, were forbidding, or, at least unsatisfying. I was tempted from time to time, to undertake to express in statuary my very imperfect, and, as I realized, my inadequate, idea of a divine man: but there was always something to restrain me from a step that might be profane, and the more I dwelt upon the matter, the further away it seemed to drift, and the more vague became the image, until in a measure, I gave it up.

"In the winter of 1867 and 1868, I was lecturing before the class of the New York College of Dentistry, and endeavoring to instil into their minds some of the elementary principles of art, particularly in reference to facial form and expression. I wanted my class to have some definite, tangible idea of the relation of one feature to another in a perfect and harmoniously developed

human head and face. An idea which one could carry in his mind, toward which he might strive so far as his limitation would permit. With this in view, I sought among the copies of Greek art for a model, but none seemed to meet my expectation. The Apollo Belvedere came the nearest, and then it occurred to me I would make my own, and I set about it, but before I was really at work, I realized that what I wanted was a perfect man. Did ever such a one exist, except in imagination: Why yes: the Christ was just that, and if I could embody my idea of a well-developed man, well balanced physically and intellectually, I should approximate my longed-for image of the Christ: and with this view I set about it. The clay dropped like magic under the touch of my fingers. I saw my idea embedded in the clay, and coming out before my very eyes. Only a couple of hours of an evening could be spared from my vocation, but in three or four days, I saw before my eyes the most wonderful face and head that I had ever seen.

"At that stage I was holding a meeting of the board of trustees of the dental college at my house. They were all men of culture, and I was curious to see how they would be impressed with my clay image, and at the close of the meeting I invited them to view it. They were positively awe-struck, and one and all pronounced it the most God-like head they had ever seen. It was majestic, dignified, serene: there was nothing severe in the expression, but one rather inviting trustful repose. Of course, I was delighted with this endorsement. The next morning, when I viewed my image, it had fallen forward on the floor, and was a misshapen mass of clay. The explanation being that it had not been properly supported at the base when the clay was set up.

"Nothing daunted, I immediately set to work anew, and fortified my clay against a renewal of the disaster. I had no doubt of my ability to restore the lost image: the picture upon my memory was apparently clear and distinct, besides the remembrance of the technique. I thought I had but to go back in my mind to the beginning of my modeling, and everything would come easy: but while I seemed to have a distinct perception of what I had lost; the moment my fingers touched the clay, the image vanished from my mind. I struggled day after day. I resorted to all the expedients I could conceive to get my mind into a former condition. To get rid of the possible distraction of working where I was conducting my profession, I took a studio away from my house, and religiously avoided visiting it until the end of the day, when its cares were at an end, and there, in the seclusion of that studio, I gave myself up to the one idea of bringing into life in the clay, the God-like image I had once seen: but it would not materialize, and then reluctantly, I abandoned the quest. I started anew on new lines, I tried to bring a picture of the liv-

ing Christ before me. I longed for it: I prayed for it: I reached out my hands, but never in my day dreams or nightly visions did any form appear to me; and then I gave up what might be called the spiritual quest, and determined to build my Christ on scientific lines and principles: that is, I would view the Christ solely as a man endowed with the highest possible physical and intellectual attainments, the best type of the human race.

"Neither Jew nor Gentile, but rather my idea of a perfect man, going back to the original idea that prompted me in the college. I planned my Christ of heroic size in the model, because bulk, where the lines are graceful, is impressive and contributes to the idea of majesty. I gave Him the head of the Caucasian, because I believed that the most pleasing, and will be the dominant type of a homogeneous race. I gave Him the feature of a woman, because I saw in women the best expression of heavenly attributes—mercy, loving kindness, gentleness and purity. I gave to Him the face of an angel, as I conceived the face of an angel might be its benignity, and lastly, I gave Him a brain development along recognized phrenological lines, which, while avoiding a monstrosity, would be within the possibilities of human existence. I gave to Him the soft beard of a man of thirty, the uncut hair of the Nazarene, and the conventional drapery of His locality and time. Thus was my Christ built, occupying daily hours of study and labor, from mid-winter until the first of May, 1868. It was afterwards reproduced in marble, and the result is before the world (see cut), but it never has filled my ideal.

"Dr. Howard Crosby did me the honor to select it from all pictures, ancient or modern, to have a steel engraving made for the frontispiece of his "Life of Christ." Many newspaper notices have appeared, sometimes at long intervals. I have yet to see one that did not speak in terms of praise. From three of these notices the following extracts are given:

"The wonderful blending of intellectual majesty, with spirituality and moral sweetness is the charm of the work. Our Lord is portrayed in the Gospel as combining in Himself the finest elements, not of one sex, but of both, and this marble is not a conception of a perfect manhood, but of perfect humanity. There is great development of brain, but a quite as remarkable softness of tone that is feminine without being effeminate. It is a face to which a philosopher would look with reverence and eager anticipation, but no less one to which a sinner lost and half despairing would turn for sympathy." (Boston Congregationalist, 1892).

"His ideal differs greatly from any picture or statue of the Savior we have ever seen. Viewed as a work of art, had it been produced by any of the distinguished sculptors of our own or foreign countries it would challenge admira-

tion, but more extraordinary that such a splendid production should come from the hands of one who has never pursued art except as a pastime." (New York Observer.)

"His great aim has been to supply that solidity, breadth, strength, and holy majesty of character so generally wanting in the heads of Christ. Had this bust been recently dug up near the villa of Hadrian it would be looked upon as a remarkable production." (New York Evening Post, 1868.)

"An episode incidental to my studio experience will interest the older dentists, and possibly others. Dr. Samuel S. White, of worldwide reputation the founder of the supply house, bearing him name, had favored Dr. Atkinson to such an extent, that the doctor almost worshiped him.

"One evening at dusk, I was on my way to my studio when I met Dr. Atkinson. He asked where I was going and I told him "to my den: come go along." Neither he nor any one else knew what I was doing. On arriving in the studio, I placed a chair for the doctor, turned up the light and removed the cover from my clay model. Nothing was said for a full minute, when he said: "It does not look like Him." "What do you mean?" I asked, and his reply was, "Oh, it is easy enough to see what you are trying to do: you are trying to make the Nazarene, but it doesn't look like Him." "How do you know it doesn't?" "Because I have seen Him." "Now see here, Dr. Atkinson, I have been looking for some one who will tell me just how He looked. Where did you see Him?" "I was out in the orchard on my knees praying, and I looked up and saw Him in an apple tree." "Did you see Him distinctly, and what did He look like?" "He looked more like Sam White than any one else I ever knew."

"My artistic tastes have led me to try my hand at something out of the ordinary avocations for a man. Some years ago there was exhibited quite a collection of picturesque embroideries in New York, that attracted considerable favorable comment. The notice, which they received may have been due as much to the society standing of the artist, a Boston lady, as to any superior merit in the pictures themselves.

"A number of young ladies in New York took up the fad, when one day, as I saw one at work upon a landscape with a marine view. I ventured some comment, which called out without disrespect this remark: "If you think you can embroider better than I can, suppose you try it." The challenge was accepted. I got a piece of shaded silk, blue, the shade running from light blue at one side or edge of the goods, to a dark blue on the opposite side.

"I immediately saw the possibilities of my picture, the sky and water were already before me by splitting the silk lengthwise and bringing the dark border

and the light together. The junction represented the horizon line of a marine view. The sky shading from the horizon darker up to the zenith as in nature, and the water growing lighter as it left the horizon, coming to the foreground. I sketched in a picture representing an autumn scene with its variegated foliage, some mountains in the distance, and sailboats in the foreground. The rest was easy with silks and worsted chosen to develop the foliage, either or both, as most suited, and the placing of the stitches was only a detail. My picture was really marvelously effective. It was standing on the floor of my office, little regarded by me, when an artist member of the Lotos Club asked to exhibit it there, and when there it called out such complimentary comment that I presented it to the club, where it hung on its walls for many years. It was so deceptive that very few recognized its texture unless attention was especially called to it.

"My last escapade into the domain of art began in Dresden, Germany, a few years ago. I was stopping with my dear friend, Dr. Jenkins, and walking along the Prager Strasse, I saw in a shop window what looked like an etching, but being on a panel it attracted my attention. On inquiry I found that it was "Poker Work," otherwise called "Pyrography," and that the shop had the apparatus on sale. I purchased the outfit and experimented. During the next year or two I occasionally pottered with it, until one day it occurred to me that there might be something more of real art in "burnt wood" than "kindergarten" trifling.

"More than forty years ago I invented and patented the first portable gas blow pipe, the pioneer of all gas blow pipes now used by dentists. It occurred to me that if I had a blow pipe that could produce a flame, fine as a tapering camel's-hair pencil, and as easily handled, I could make a picture in monochrome with all the varying shades that could be made with a brush and without lines, and I made an instrument admirably adapted to the purpose.

"Rembrandt's pictures appealed to me more than those of any other artist and besides, lent themselves readily to monochrome.

"I began with a copy of one of Rembrandt's portraits of himself, now the property of Dr. Thorpe, of St. Louis, and met with such success, in the opinion of some art critics, that I got the ambition to make copies of all the portraits that Rembrandt had painted. After I had made ten or a dozen of them, I bethought me to find out how many there were in all, and when I learned there were more than forty my zeal suffered a relapse. I continued, however, to make copies of other Rembrandt work, and to my eye they better represent the Rembrandt style, character and tone than those produced by any other medium. So far as I know, no one else had attempted what



Kingsley's Pyrographic work.



King-ley's Pyrographic work.



Kingsley's Pyrographic Work.

might be denominated "flame painting", nor has any one made an instrument that by the mere gentle pressure of a fingure can be be changed instantly from a fine, pointed flame to a full, broad one, producing shades varying from faint sepia, through all the grades, to a coal black.

"The possibilities of the instrument in the hand of an artist on a piece of fine grained holly wood are almost unlimited."

Some one has aptly said, "If I were permitted to choose between the fame of the successful sculptor, and the renown of the disappointed statesman, I should declare for art." Dr. Kingsley's life has been spent in improving his calling and with his artistic attainments in adding culture and caste to it.

Without doubt, Dr. Kingsley is the most versatile man in dentistry. Surely he was gifted by the gods, and could do more things well than any other dentist of his time. He was appropriately called "The Admirable Crichton" of the dental profession, skillful as an operator, both operative and prosthetic, as an orthodontist, sculptor, artist, writer, and speaker. His fame has spread until it is world wide. At the advanced age he is at this date (1908), spending the twilight of his life at Warren Point, N. J., waiting the call to the reward that must surely come to those who possess "The Master's touch," which must have, in his lifetime, made "The sculptor's chisel keen."

Theron Sylvester Hitchcock, M. D. S.

ARTISTIC CARVER IN WOOD, BONE AND IVORY, AND COLLECTOR OF ANTIQUES.

If the story of the career of the subject of this sketch were written in full detail, it would read more like a romance than a biography. It is said, "a rolling stone gathers no moss," yet Dr. Hitchcock has gathered much from the hills and valleys of America and Mexico in the shape of many rare and valuable collections of art, relics and curios, as well as from the hidden treasures of Europe.

Theron Sylvester Hitchcock, son of Levi Hitchcock, an edge tool manufacturer, was born, July 22, 1830, in Northampton, Mass. Here he spent his early boyhood, later was employed and became an architect and removed to Georgia, where he lived during 1850-1. In 1859, he began the study of dentistry with Dr. S. B. Palmer, at Syracuse, N. Y., and was associated with him until April, 1864, when he started for Montana, making the trip by river, after three months, arriving at Ft. Benton, the end of navigation. From here to Virginia City, Montana, where he practiced a while, then removed to Salt Lake City, later to Denver, on his return he had some experience in the Indian war in Kansas. Through which state he traveled by stage on his return to Syracuse. Buying the practice of his former preceptor, Dr. Palmer, here he practiced until 1868, and then became the partner of Dr. Amos Westcott, at Syracuse. Westcott died, 1871, and Dr. Hitchcock located at Seneca Falls, N. Y., and there practiced until 1878. Then sold out and went to California. This was shortly after the Mackey and O'Brien swindle that ruined business temporarily in California. He located at Los Angeles, thence went to Tucson, Arizona, where, on the Gila River he had several unpleasant encounters with the Apache Indians, who were then on the war path. Tucson then had a population of 7,000 Mexicans, and 25 Americans and Germans. Here he staid one year and a half. Then located at Omaha, thence to New York City, where he practiced until 1883, when he went to Europe, where he practiced for three years. He was in Switzerland for a short while with Dr. Terany, then at Weis Baden, thence to Dresden, Saxony, as an assistant



T. S. Hitchcock

to Dr. N. S. Jenkins for three years, returning in 1887, and opened an office at Oswego, N. Y., where he continued in practice until 1904. Dr. Hitchcock writes me he has been a "Dental tramp" and enjoyed forty years of wanderings. Born with a love of nature and art, he lived in camp part of the time, and gathered many curios and relics of by gone ages. A collection of 500 pieces of the stone age, which he collected is now in the museum of Cornell College.

While in Europe old arms and armor, guns, pistols, swords, powder horns, etc., was his hobby. Of Greek and Roman Cameos he collected 700 specimens, also a large collection of pearls and opals collected on the Pacific Coast. When in Arizona, he made a collection of flora, now in The Smithsonian Museum, also a large collection of Entomologycal specimens of centepedes, spiders, beetles, scorpions and tarantulars, which he sold in New York. Of late years Dr. Hitchcock has put in his leisure time in carving on horns, of which he now possesses some twenty. These have taken years of patient work. On them he carves historical and alligorical scenes. This is slow and tedious work, though much of it he did with his dental engine. This carving has developed his hands and wrists so he can use his left as well as his right hand. His other carvings in bone, ivory and wood, are remarkable as the illustrations in this sketch show. Dr. Hitchcock says, "I was nearly a year at work on 'The Judgment of Paris' and about the same time on 'The Buffalos and Indians.'"

He has carved statuettes of Roscoe Conklin, Ada Rehan, Roland Reed, Nellie Butler and other celebrities, also plaques of Drs. John Greenwood, Thos. W. Evans, A. P. Southwick and W. T. C. G. Morton. Dr. N. W. Kingsley very truly said in a paper, "Dentistry not a specialty in Medicine," published in "The Dental Review," 1887. "Wipe out of dentistry everything belonging to mechanics, and you will have taken away all the brains, and cut the head off close to the tail. If all the workers in metals, gold, silver, brass, iron, or steel—if all the workers in wood, carvers, cabinet-makers, and builders—if all the workers in pottery, moulders, porcelain makers, and decorators, together with all the artists, painters and sculptors, were suddenly and simultaneously destroyed by some strange cataclysm or epidemic, those arts would not be lost; for in the ranks of the dentists could be found skilled experts in every one of them and this comprehensive combination of natural faculties and acquirements is not to count against them, for if in the same grand catastrophe all the scientists of certain classes were carried off, the same sciences could be fully taught by dentists."

Dr. Hitchcock believes it the duty of each man to leave some object of art

CARVED PLASTER PLAQUES BY DR. HITCHCOCK.



Fig. 1.

Dr. Thos. W. Evans.



Fig. 2.

Dr. A. P. Southwick.



Fig. 3.

Dr. W. G. T. Morton.



Fig. 4.

Dr. John Greenwood.



Fig. 5.

Set of Artificial Teeth
Carved out of Horn.

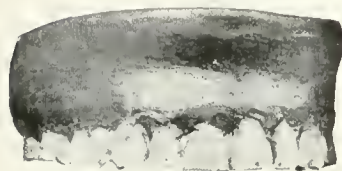


Fig. 6.

Plaster Cast in which Full Set of Natural Teeth is Embedded, no two Having Been Taken from the Same Mouth, Showing Uniformity.

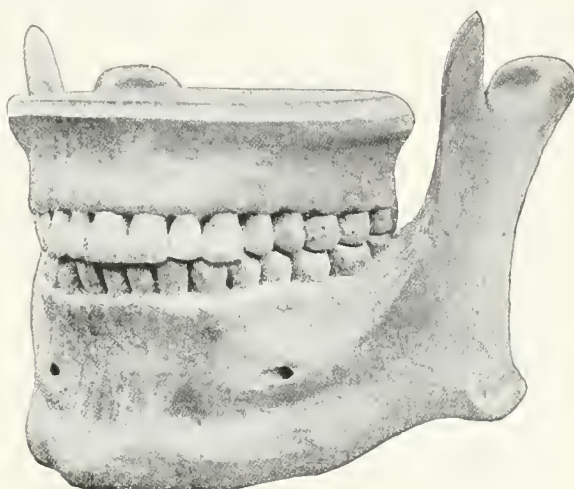


Fig. 8.

Upper and Lower Jaw Carved out of Wood with Teeth Occluded.



Fig. 7.

Set of Teeth Carved from Bone.
DR. HITCHCOCK'S CARVINGS.



Fig. 10.
Judgment of Paris.



Fig. 13.
Group of Elephants.
Dr. Hitchcock's Carvings.

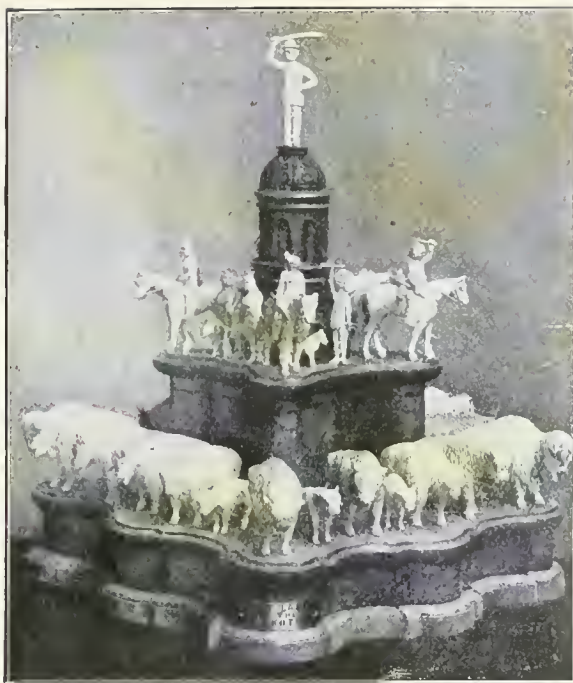


Fig. 12.
The Last of the Dakotas.



Fig. 14.
The Buffalo Drive.
Dr. Hitchcock's Carvings.

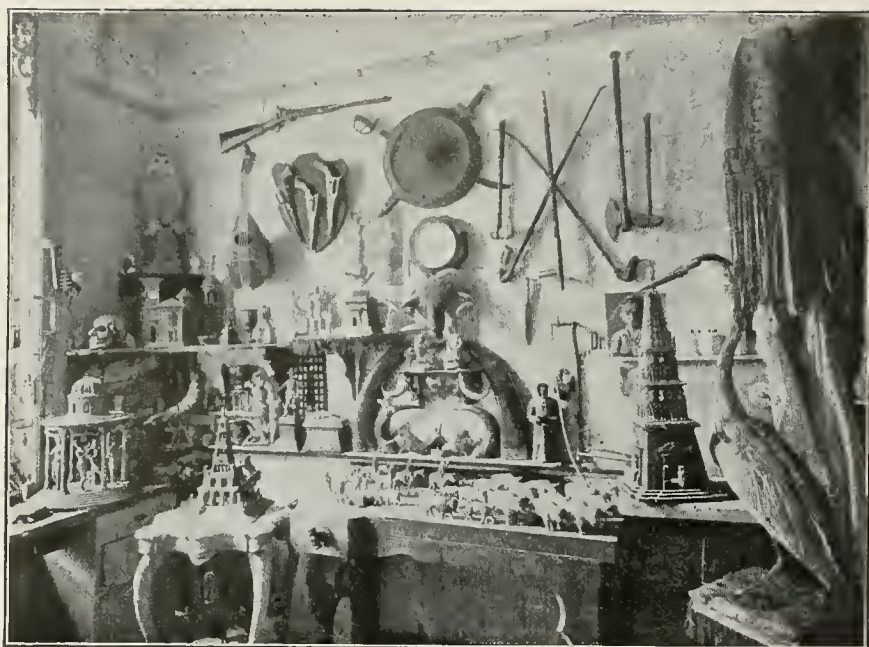


Fig. 9.
Laboratory of Dr. Hitchcock, showing Carvings and Relics.



Group of Mugs.
Dr. Hitchcock's Carvings.



Fig. 11.
Statuettes of Roland Reed, Roscoe Conklin, Nellie Butler and Omega.

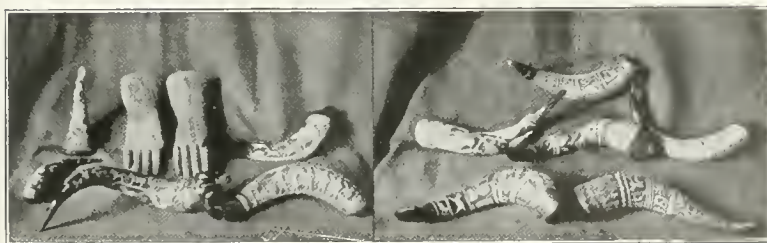


Fig. 17.

Fig. 15.

Powder Horns.

Dr. Hitchcock's Carvings.



Made by
Dr. T. S. Hitchcock.

or contribution to literature or science that those who travel this road in the future may be aware their life was not in vain. Paraphrasing the words of another great artist he says.

“Busts of great men all remind us,
We can have one of our own,
And departing leave behind us
One in marble, wood or stone.”

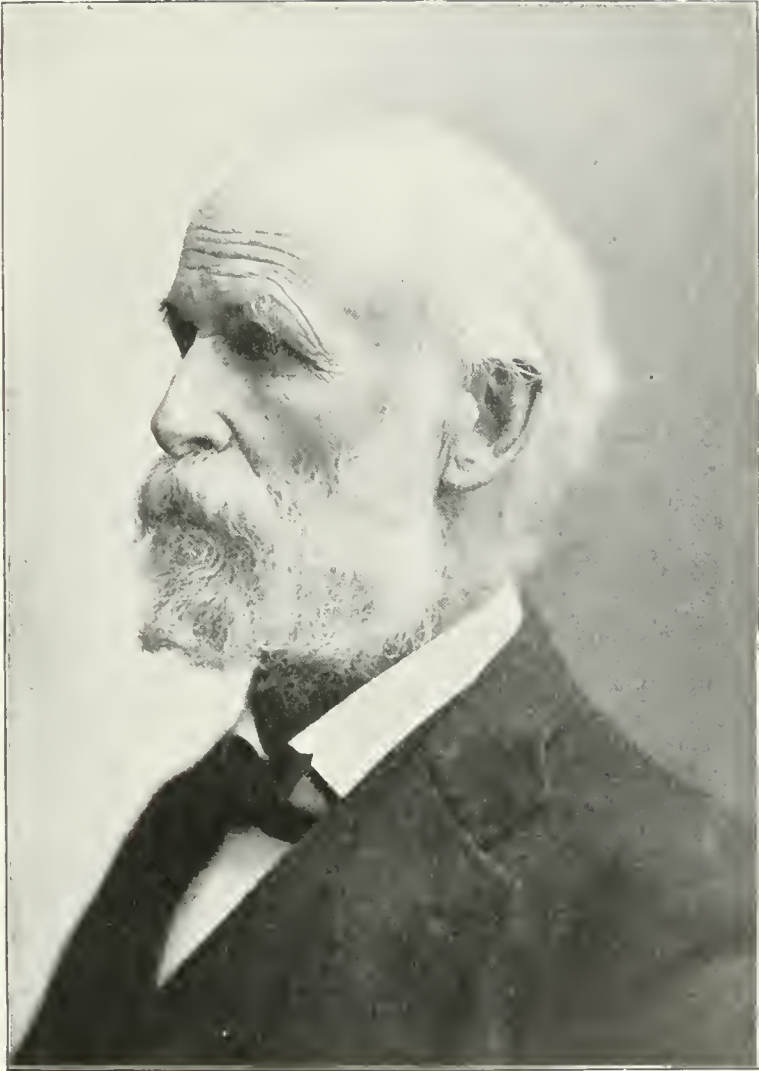
GREEN VARDIMAN BLACK, M. D., D. D. S., Sc. D., LL. D.

THE LEADING CONTRIBUTOR TO MODERN SCIENTIFIC DENTISTRY.

The banquet, January 15, 1907, given by the St. Louis Society of Dental Science, in honor of Dr. Black, was the expression of the esteem and appreciation this society has for the man whose long and useful career has been devoted to dentistry. The profession throughout the world hold Dr. Black in the highest esteem and are his debtors for his many scientific contributions. Yet few know much of the personal side of his busy life. This sketch is prepared with the object of enlightening the profession as to "the other side" of the life of one of our greatest benefactors.

Green Vardiman Black was born near Winchester, Scott county, Ill., August 3, 1836, the son of William and Mary S. (Vaughn) Black, grandson of Thomas Gillespie Black, and a great-grandson of Captain William Black. The last named ancestor was a captain of the militia in North Carolina just before the Mecklenburg Rebellion, and one of the first officers who refused to take the oath of allegiance to the British Crown. Capt. William Black, who married a Miss Beard, lived in Rockingham county, N. C., and died at the beginning of the Revolutionary War. His son, T. G. Black, who married Polly Callahan, was born in Milledgeville, Ga., January, 1772, and died at Milledgeville, November 20, 1823. He served as captain under General Jackson in the Seminole War. His son, William, was born in Milledgeville, January 13, 1796. In 1825 he went to Tennessee and there married Mary S. Vaughn, whence they moved to Scott county, Ill., about 1834. He was a cabinet-maker by trade and also followed farming. He moved from Scott county to what is now Cass county, Ill., about 1844, settling on a farm seven miles southeast of Virginia, Ill., where four of his sons resided. He and his wife are buried in the family burying ground in Cass county.

G. V. Black was reared on the farm and had a very limited country schooling, attending school a few months of several winters. He was, however, an apt student and tireless reader, and developed his own mind largely



L. V. Blacke. M.D., D.D., S., Sc.D., LL.D.

in the school of Nature. Dr. Black beautifully described his early boyhood, at the banquet recently given in his honor in St. Louis, in the following words:

"My thoughts recur to-night to the boy as I remember him fifty-three years ago in the old home, very slight and frail in health, so much so that he was not expected to do the usual work of boys of his age. He roamed the prairies and the forests adjoining each other at his home often with the rifle, oftener without it, and came rapidly to know every bird and every animal of the region, how they built their nests, how they fed, how they lived and their apparent relations to each other. It was a world of the richest interest, teeming with life in its varied forms and filled with the varied struggles for continued existence. Those who watched could not understand why the boy should examine all of these things so intently; neither could he explain further than to say that he loved these birds, these animals, these prairies and the deep woods. Little did the boy think then of the part he should play in the world of science and in dentistry. Almost as unconscious of any special merit or aptness as when he examined the birds and the animals, yes, and the reptiles, too, so many years ago, the man has since followed the work begun in the frontier settlement."

At the age of seventeen he made his home at Clayton, Ill., with his brother, Dr. Thos. G. Black, who was a lieutenant-colonel in the Civil War and twice a member of the Illinois Legislature. With him G. V. Black read medicine, and during that time for a while acted as postmaster. At the age of twenty-one he began the study of dentistry at Mt. Sterling, Ill., with Dr. J. C. Spear, and after one year established, in 1857, a dental office at Winchester, Scott county, where he remained until 1862, studying constantly in the meantime, until he entered the army as a private. During the Civil War, Dr. Black served as a sergeant, but was engaged most of his time on special scouting duty. He was injured in the knee joint and spent six months in the hospital in Louisville, Ky. Returning home he came to Jacksonville, Ill., and opened a dental office there in 1864 where he continued until 1897. At first he applied himself to the study of chemistry, establishing a complete working laboratory in connection with his office. He organized a class in chemistry among the public school teachers, which he taught several years, also taking a prominent part in the medical organizations of the city and county. He has become widely known as an author and lecturer on scientific topics pertaining to his profession. His writings have been translated into many languages and are standard authority on the subjects they discuss. His contributions to books are, "Formation of Poisons by Micro-organisms" (1884), "Periosteum and Peridental Membrane" (1887), Litch's "American System of Dentistry." Chapters on "General Pathology," "Pathology of the Dental Pulp," "Diseases of the Peridental Membrane," "Abrasion and Erosion of the

Teeth" (1887), "Anatomy of the Human Teeth" (1891), "Operative Dentistry" and "Technical Procedures in Filling Teeth" (published for several years for school classes, now published as regular text-book, 1908); "Gold Foil" (Illinois State Dental Society, 1869), "Gold Foil" (New York Odontological Society, 1874), "Management of Enamel Margins" (Dental Cosmos, 1891), "Report of Chairman of Committee on Dental Nomenclature, World's Columbian Dental Congress," Chicago (1893), "An Investigation of the Physical Characters of the Human Teeth in Relation to Their Diseases and to Practical Dental Operations, together with the Physical Characters of Filling Materials" (Dental Cosmos, 1895), "Atrophy of the Teeth" (Chicago Odontographic Society, 1905).

A prominent feature of his writings are the numerous original drawings made by the author himself. He has not only been a writer and teacher, but has always been a practical worker and an inventor. He has the distinction of having invented about 1870 and patented the first cord-driven-transmission dental engine, described and illustrated in the "Dental Cosmos," 1905. The patent of this was sold to the S. S. White Dental Mfg. Co. The present plans of scientific cavity preparation in teeth and the methods of correctly inserting and making both gold and amalgam fillings are largely due to Dr. Black's investigations. He has been preeminently an original worker.

Some of his inventions that have made operative dentistry scientific are as follows:

An Amalgam Micrometer for measuring shrinkage and expansion of plastic filling materials.

A Combination Dynamometer and Micrometer for determining the strength and amount of yielding of substances under pressure and the flow of amalgam.

The Phago-dynamometer for measuring the crushing strength required for various fillings.

The Gnatho-dynamometer for measuring the force of the bite.

The Manu-dynamometer for testing finger power in the use of instruments.

The Tupto-dynamometer for measuring the force exerted by blows of pluggers.

From 1870 to 1880, Dr. Black lectured on Pathology, both general and dental, in the Missouri Dental College at St. Louis. Subsequently, from 1883 to 1889, he was professor of Dental Pathology in the Chicago College of Dental Surgery. After this he was identified with the Dental Department of the University of Iowa for one year, 1890, as professor of Dental Pathology and Bacteriology, from which he was called in 1891 to the Northwestern



Dr. Black at Work in His Laboratory.

University Dental School as professor of Operative Dentistry, Dental Pathology and Bacteriology, being afterward made dean of the Dental Department, the position which he now occupies. During the period of his professional labor, he has held the highest offices in the gift of the dental profession. He joined the Missouri State Dental Association at its second meeting in St. Louis, June 6, 1866. This was his first dental society affiliation and from it and the early Missouri dentists he got much of his early inspiration. He has been a member of the Illinois State Dental Society since 1868. Was voted a life member of this society in 1867; was president 1870-71. To this society he has contributed many papers. He has been a member of the American Dental Association for many years and of the National Dental Association, of which he was president in 1900-1. He is also a member of the Chicago Dental Society, of the Odontographic Society of Chicago and of the new Chicago Odontographic Society. He was president of the first State Board of Dental Examiners of Illinois in 1881. Was elected a member of the Odontographic Society of Pennsylvania in 1887. Was elected corresponding member of the Academy of Natural Sciences of Philadelphia in 1877. Elected honorary member of the Microscopical Society of Central Illinois, 1881. Elected corresponding member First District Dental Society of the State of New York, 1886. Chairman of the section on "Etiology, Pathology and Bacteriology," World's Columbian Dental Congress, Chicago, 1893. Was presented with the first fellowship medal by the Dental Society of the State of New York in 1905. Dr. Black is also a member of many other dental and medical societies.

For ten years he has represented the Northwestern University in the National Association of Dental Faculties, of which he has been president. He has frequently been invited to address dental organizations in New York, Boston, Philadelphia, St. Louis, and also many other city and State dental societies, and has been the recipient of numerous other honors at the hands of his professional colleagues. In 1877 the Missouri Dental College conferred the honorary degree of D. D. S. upon him. The Chicago Medical College conferred the honorary degree of M. D. upon him in 1884. He received the Sc. D. degree from the Illinois College in 1892, and the LL. D. degree from the Northwestern University in 1898.

Dr. Black is one of the simplest of men in his personal habits and has been truly and entirely given up to professional and scientific study. His method of study is to take up a subject and pursue it to a conclusion, avoiding, as far as possible, for the time, other subjects. It is his habit to become thoroughly imbued and saturated with the investigation in hand, using every opportunity to talk about it with others, as well as working at it in his library and

laboratory. For example, his early equipment of a chemical laboratory. He organized classes in chemistry among the public school teachers of Jacksonville, and except when occupied at the chair, continually thought and talked chemistry until he had mastered the subject. In fact the underlying motive of his teaching was to perfect his own knowledge. This followed closely upon a period devoted almost entirely to devising the dental engine and other machinery, and during that period he equipped and maintained a machine shop, and thought only of mechanics. Later he purchased from a German physician, who had no use for it, one of the first microscopes which was brought to Jacksonville, and for a number of years devoted his time almost exclusively to microscopic study.

These studies were not confined to dental subjects but covered the whole range of histology and pathology, a subject which he was first inspired to master while a resident of Clayton, Ill., where he assisted the village physician in treating a typhoid fever epidemic which resulted in thirty deaths. When Dr. Black started on the microscopic study of the tissues of the body he recognized the fact that in order for one to properly interpret the sections as seen through the microscope one must be thoroughly familiar with microscopic technic and microscopic interpretation. He therefore became a microscopist in the old-fashioned sense, mounting and studying all sorts of small objects, and in fact all sorts of small things, even to pieces of wood and fossils. He made a very thorough study of spore life, the small animal and plant forms of bacteria found in stagnant ponds of water and ditches. He dissected all sorts of insects and earth worms, large and small. During this time he was often consulted by physicians for microscopic examinations of various sorts. One day while the doctor was working at the chair a physician came in and holding up a little vial said, "Here is something that I took out of a man's eye to-day and I wish you would examine it and tell me what it is." The doctor did not stop his operation but said, "All right, give it to the young lady and stop in again in a day or two when you are going by." A few days later the physician again appeared and said, from the doorway, "What was it I left with you the other day?" "Oh," said Dr. Black, "that was the first joint of the third leg of a potato bug." "Well," said the physician, "what was there about that to kick up such an inflammation as there was in that man's eye?" Dr. Black replied, "There is a gland at the base of the third leg of a potato bug which secretes a poison and there was a part of the gland sticking to the leg. You remember that when we could not get cantharides for blisters we used to go out and get a lot of potato bugs and grind them up.

Well, it was the poison from that gland that did the work, and so it is no wonder that there was inflammation in the eye."

It is said Dr. Black went into detailed minutia in all his researches and even dissected and mounted the sexual organs of a fly. During this time he made and preserved a large collection of microscopic slides, illustrating the normal and morbid characteristics of almost every tissue. He wrote a manuscript on house mold, also a complete thesis or treatise on the reproduction of fungi. He also became interested in the study of the grain of various woods, making a study of them on slides with the microscope. He made a series of classifications of fossilized woods, a subject on which he is an authority. If Dr. Black had had the time to devote to the further pursuit of his studies on plant life he might have eclipsed Luther Burbank's wonderful achievements. Another great accomplishment of Dr. Black is his aptness in the science of deduction, at which he almost rivals the powers of "Sherlock Holmes." To concentrate his thoughts he resorts to tobacco as did Holmes, only Dr. Black's sedative or stimulant, whichever it may be, is in the shape of black cigars, a hundred and fifty of which, it is said, he consumes each week. With clouds of smoke surrounding him, walking rapidly up and down the room, Dr. Black has worked out many of the difficult scientific problems he has undertaken to master.

In 1878 he took the examination before the first Illinois State Board of Health, and was licensed to practice medicine.

It has always been his habit to keep some scientific subject on hand for study. These subjects have covered a rather wide range. Among such subjects may be mentioned a study of the cyclones of Illinois, on which he made quite an extensive report to the Weather Department at Washington. The weather is another subject on which he is an authority. He carries a pocket barometer with which he tells weather conditions, etc.

During the war he was injured while on scout duty and was confined for several months in a military hospital at Louisville, and was never able to resume active service. This, with his habit of incessant work and study, seriously injured his health, and for twenty years it has been necessary for him to take a vacation in the summer. For fifteen years of this period he went to Petosky, on Lake Michigan, where he owned a sailboat called "The Microbe." His boat was equipped with water tight compartments which he filled with provisions and everything necessary for a six weeks' cruise. He slept in his boat and spent the vacation period in exploring the shore and lakes and rivers of the region, making maps of the same. He always came home from these trips greatly refreshed and restored to health.

A characteristic of his work has been an inability to put it aside even for sleep, and as a result he is always more or less troubled with insomnia. If the constant pursuit of one subject, to the exclusion of all others till it is mastered, can be called an eccentricity, that is certainly his most prominent one, and if constant application to scientific and professional study, to the exclusion of most other matters, can be called a characteristic, this is certainly a most prominent one. He is, and has been, a living illustration of that terse definition of genius as being as unlimited capacity for hard work, for he has certainly never allowed the difficulties surrounding a task to interfere with its accomplishment. At the same time he has always taken an active interest in municipal, state and national political affairs, reading regularly the daily papers for political information, frequently contributing to the newspapers on current topics, and never neglecting to vote the Republican ticket.

In the summer of 1906 Dr. Black received an invitation to be the guest of the American Dental Society of Europe at its annual meeting held in Berlin in the first week of August. He accepted and was accompanied by his son, C. E. Black, M. D., who writes of the trip as follows:

"This Society has one hundred and thirteen active members out of the seven hundred American dentists, or dentists educated in America, now practicing in the various countries of Europe. Few things have interested me so much as the present condition of dentistry in Europe, and I think I can fairly say that few things have so much distressed my father.

"We left America on the 'Grosser Kurfurst' of the North German Lloyd line from New York on July 12, and arrived in Bremen, then proceeded directly to Berlin. We took up our residence at the Palast Hotel, where the meeting of this Society was to be held. About fifty members of the Society were present; and a number of very interesting papers were read. Father's paper on 'Dental Caries,' which was illustrated by about ninety lantern slides, received marked attention, the paper and its discussion occupied the largest part of the day. The discussion was opened by Dr. Miller, of Berlin, who also presented lantern slides on the same subject. Certainly no man could have been more thoughtfully or more handsomely cared for by his professional colleagues than father was during his European trip. Every American dentist showed him marked attention. During the Berlin meeting, several elaborate dinners were given at which father received special attention, one of these occurred on the eve of father's seventieth birthday and this made the subject of many complimentary remarks. Immediately following the Berlin meeting was a meeting of the German National Dental Society at Dresden. I did not accompany him on his visit to Dresden. With one exception no American dentist practicing in Europe was admitted to the sessions of this society. American dentists visiting in Europe were welcome, and father was invited to address their society, and also to speak at their banquet.

"Why no German dentists, that is those having only degrees from German dental schools, were admitted to the meeting of the American Dental Society, and why no

American dentists, except those who had their 'return tickets,' were admitted to the meetings of the German Dental Society, was a subject which greatly interested and distressed my father, and one which seems to be intimately associated with the whole question of dental education in Europe. This fact coupled with another, namely, the fact that dental education in Europe is largely dominated by the medical schools, will continue for a long time to prevent dentists in Europe from occupying that social and professional position to which they are justly entitled, and will prevent the perfecting of a proper school for dental education."

On this trip Dr. Black visited the dental schools of Berlin, Dresden, Heidelberg, Paris, and London for the purpose of studying their facilities and methods. He made copious notes and had something to say on the subject in his paper, "The Limitations of Dental Education," which he presented to the Illinois State Dental Society, May 14-17, 1907.

After leaving Berlin he visited Hamburg, Cologne, Heidelberg, Paris and London, also took the trip up the Rhine and spent several days in Switzerland, where he was the recipient of many attentions from American dentists; but from a scientific point of view his trip was made at a bad time of the year, because very few of the prominent dentists were at home; for example, in London, out of twenty prominent dentists on whom he would have called, only one was in the city.

In 1860, Dr. Black was married to Jane L. Coughenower, of Clayton, a daughter of Henry Coughenower, a miller, and Agness Likely. Agness Likely was a daughter of William and Agness Taylor. Probably the latter belonged to the same family as President Zachary Taylor. The Taylors were direct descendants of Rollin Taylor, who was burned at the stake in England for heresy. Mrs. Black was born in Griggsville, Ill., March 31, 1838, and died in Cass County, Ill., August 26, 1863.

At Jacksonville, in 1865, he married Elizabeth Akers Davenport, a daughter of Ira and Minerva (Reid) Davenport, and a niece of Peter Akers, a widely known Methodist preacher and circuit rider. Of the first union two children were born, Horace Vaughn, who died in infancy, and Carl E. (A. M., M. D.), of Jacksonville, Ill. To the second union were born Clara, of Chicago, Arthur D. (B. S., D. D. S., M. D.), of Chicago, Assistant Professor Operative Dentistry and Assistant in Oral Surgery in the Dental Department of the Northwestern University, and Margaret Olive, wife of Mark Baldwin, of Duluth, Minn.

Dr. Black is a member of the Masonic order. He also was a member for thirty years of the Monday Night Club at Jacksonville, which was composed of the thinking people of the city. It is said that for thirty years he never missed a meeting while he was in that city. In his early days, as previously

mentioned, he was a crack rifle shot and fisherman. One of his closest friends tells the following story regarding Dr. Black's prowess as a shot: "In the early day, Dr. Black was out in the woods with a number of fellows shooting squirrels. All except Dr. Black had shot guns, yet he was getting much of the larger bag, because he could reach the further with the rifle he carried. Nearing the edge of the woods a covey of quails started up, and flew into the stubble field. The boys with the shot guns said: 'It is our turn now, we will get our share this time.' It happened that five quails started up singly at sufficient intervals, and each flew straight away. Dr. Black got the five in succession with his rifle."

Dr. Black is truly a man of versatile talents and attainments outside of his profession. Later in life he became interested, and has excelled as a chess player, a game at which he is an expert. For a number of years he was a leader of the choir, and played a violin in one of the churches. He used to frequently play at home for the amusement of himself and friends. Those who know him believe him to be the greatest man of this generation in the dental profession in the whole world. Measured by the beneficent influence of his public utterances and based upon the general belief that a greater number of practitioners have changed their mode of practice for the better in a greater number of ways in consequence of what he has written and demonstrated, as practitioner, teacher, author, artist, and as a man of many and varied versatilities, he may safely be counted as a benefactor to humanity and as one of the greatest scientists known to the annals of the dental profession.

WILLOUGHBY D. MILLER, A. B., D. D. S., M. D., Ph. D., Sc. D.

A GREAT DENTAL SCIENTIST.

The announeement, at the opening session of the National Dental Association, July 30, at Minneapolis, of the death of Professor Miller, came as a thunderbolt, and brought pain and grief to his many friends and admirers there present, as it has to the entire dental profession. Three weeks prior to his death, Professor Miller, accompanied by his family, had returned to America, where he expected to reside permanently, having resigned all of his dental society and college affiliations and the positions of honor he occupied in Germany. He expected to begin in October the duties of dean of the Dental College of the University of Michigan, at Ann Arbor, his main duty there to be the training of young men to become scientific workers for our profession. While with relatives in Alexandria symptoms of appendicitis developed. On July 22, an operation was performed at the City Hospital, Newark, Ohio. The condition was found to be serious, as gangrene had set in. Death occurred Sunday, July 28, 1907. His funeral took place at his birthplace, Alexandria, Ohio, and his remains were interred in the cemetery there.

A biographer of Elizabeth Barrett Browning wrote to "The London Gazette," when the place of her birth was in question, "You might as well expect throstles to build nests on Fleet street buses, as for folks of genius to be born in a big city." This opinion is applicable to the great talent of the dental profession, as well as to other forms of genius, for the majority of our foremost men were sturdy lads of the farm, in the work of which they developed the brain and brawn with which they successfully won life's battles.

Willoughby D. Miller, son of John H. and Nancy L. Miller, was born at Alexandria, Licking County, Ohio, August 1, 1853. His parents were farmer folks and with them young W. D. lived until he was 13 years of age. Before that age he attended the county school and in his ninth year won the "spelling match" in three district schools. During vacations he worked on the farm, where he developed his after physical capacity for work. In 1865, with his family, he moved to Newark, Ohio, where he attended the high school, from



W. D. Miller

which he graduated in 1871. Directly following this he matriculated at the University of Michigan, Ann Arbor, and graduated as A. B. in 1875. In the autumn of that year he went abroad to attend the University of Edinburgh, Scotland, where he took a special course in Chemistry, Natural Philosophy, and Applied Mathematics. Here he studied under Sir Wm. Thomson until 1876, when he went to the University of Berlin, where those branches of study were continued, he having in view the profession of physics. Constant application to study caused a nervous and physical break in his health in 1877 and a serious illness forced him to suspend his studies.

Dr. Miller received his first lesson in dentistry from Dr. James Truman, who, while traveling, passed through Berlin in 1877. At that period Dr. Abbot, a pioneer American dentist in Germany had located in Berlin, and was a leader in the so-called "American Colony" in that city. He had married a daughter of the American Minister to Germany, and this, with his own talent, had given him a high standing in social and intellectual circles. As young Miller was convalescing from his illness, he drifted into this American Colony atmosphere, where he formed the acquaintanceship of Dr. Abbot and his daughter, who both became interested in the young student. Dr. Abbot submitted to his chemical knowledge a number of professional problems, one of which was the action of tin and gold upon each other in combination as a tooth filling material. This period was a turning point in the life of Miller. The influences then at work changed the whole current of his future, and gave to dentistry a man who has contributed more to its scientific achievements than any other one man, for it is probable that the problem of the etiology of dental caries is the greatest that has ever been solved by any one man in dentistry, and to W. D. Miller the public and the whole profession owe a debt of gratitude for this service, one which was really the outcome of the acquaintanceship with Dr. Abbot.

To Dr. Abbot's daughter he was married October 26, 1879. To the accomplishment of this matrimonial purpose young Miller sacrificed his previous plans in life, and became a dental student in the office of Dr. Abbot. During the session of 1877-8, he studied in the old Pennsylvania College of Dental Surgery, graduating as D. D. S. in the session of 1878-9 from the newly organized Dental Department of the University of Pennsylvania.

Immediately after graduation he returned to Berlin, and entered practice with Dr. Abbot, at the same time continuing his studies in medicine and commencing a course in bacteriology with the renowned Professor Koch. Following this he received the M. D. degree in Berlin, where he practiced dentistry up to

June of the present year. In Berlin Dr. Miller soon had a large following of both American and German patients.

From 1880 to 1890, he treated the present empress, when she was crown princess, also various members of the royal family. Within the last year, in consideration of Dr. Miller's distinguished scientific contributions, the emperor gave him the title of Medical Privy Councilor. This was the first time this honor was ever conferred upon an American, and the first time it was ever conferred upon a dentist of any nationality.

From the beginning of his practice to the time of his death, Dr. Miller conducted many series of scientific experiments which have done so much to make his name known to the scientific world. His writings from the first attracted attention, and he was hailed as a great scientific authority. The University of Michigan, from which he graduated as a Bachelor of Arts, conferred upon him the honorary degree of Doctor of Philosophy, and the University of Pennsylvania conferred a similar honor, the honorary degree of Doctor of Science.

In 1884, after having been repeatedly urged to accept the professorship in the new German Dental Institute, in the fall of that year Dr. Miller acquiesced, and received the title of "Royal Professor" in the University of Berlin, an honor never before conferred upon a foreigner. This professorship is a government appointment, and is only given to men of acknowledged scientific and professional standing. Dr. Miller was also promised an "extraordinary" professorship in the Medical Faculty of the University of Berlin, but as a condition it was subsequently required of him to become a naturalized German citizen. This, however, because of his loyalty to his native country, he declined, saying he "would not give up his American citizenship for any position whatever."

After his graduation in dentistry he steadily pursued his medical studies, and in 1887 came up for the "Rigorosum," the most exhaustive of all the examinations. He passed it with the predicate of "*Magna cum Lauda*," and the record of 14 out of a possible 15. The latter number, however, has practically never been reached. Aside from his record, the highest mark gained in the year in which Dr. Miller took the examination was 8. This brilliant examination established him firmly in the German university.

The quotation of Hubbard's, that "Strong people are not so much advertised by their loving friends as by their rabid enemies," is true in Germany as in other parts of the civilized world.

Previous to this time he was bitterly opposed by the German dentists, who were jealous of all American practitioners. They had repeatedly sent peti-

tions to the Minister of Education, asking that Professor Miller's services be dispensed with, and a German appointed in his stead. He never hesitated to proclaim his Americanism at all times and all places. After his successful examination opposition to him in Germany was silenced, and the German dental and other scientific journals began to evince pride in his attainments. One of the prominent dental editors declared Miller's name the brightest known to dentistry. He placed him above all his contemporaries, and suggested calling the ninth decade of the century "*The Miller Decade.*"

Dr. Miller has enjoyed the respect and confidence of his *confreres*, both of Germany and throughout Europe. He has been honored by being elected President of the American Dental Society of Europe, the National Dental Association of Germany, and The Association of Dental Faculties of Germany. At the annual meeting, 1904, of the Federation Dentaire Internationale, Dr. Miller was elected its president, an office he was elected to hold until the Fifth International Dental Congress is held in 1909, at Berlin. He had also been honored with election to honorary membership in over forty different dental societies.

From the very beginning of his professional career he was a most indefatigable student, spending many hours in his laboratory in experimentation. Much time also was given to literary work, which was by no means confined to English, for the majority of the articles he has prepared have been written and published in German, a language which he spoke and wrote fluently, and which, indeed, was as familiar to him as his native tongue. His most notable works are his books, "Microorganisms of the Human Mouth," and "Lehrbuch der Konservierenden Zahnheilkunde" (Text-book of Conservative Dentistry), besides one hundred separate publications, from one or two hundred pages each, of which the following is a list:

- On the Antiseptic Action of Filling Materials.
- Pathologische Erscheinungen am Elfenbein.
- Studies on the Anatomy and Pathology of the Tusks of the Elephant.
- The Human Mouth as a Focus of Infection.
- Concerning the Oxyphosphate Cements.
- Decay of a Replanted Tooth.
- Caries eines replantierten Zahnes.
- Bacteriology as an Integral Part of the Dental Curriculum.
- Ueber die Desinfektion von zahnärztlichen und chirurgischen Instrumenten.
- Concerning Combined Fillings.
- The Iodoform Question.
- Caries of the Teeth in an African Manatee (*Manatus senegalensis*).
- Caries der Tierzähne.

Experimentelle Untersuchungen über Kupferamalgam und Amalgam-Cement.
Versuche in Bezug auf die Form, in welcher Arsenpast a zur Abtötung der Zahn-
pulpa am zweckmassigsten anzuwenden ist.

Einige kurze Notizen in Bezug auf bakteriologische Untersuchungsmethoden.

Einleitung zum Studium der Bakterio-Pathologie der Zahnpulpa.

An Introduction to the Study of the Baeterio-Pathology of the Dental Pulp.

Untersuchungen über die Zahnbeläge mit besonderer Berücksichtigung des grünen
und der metallischen Beläge.

The Deposits upon the Teeth with Special Reference to Green and Metallic Deposits.

Experiments Relative to the Form in which Arsenious Acid may be Best Applied for
Devitalizing the Pulp of Teeth.

Demonstrationen einiger Zahn- und Kieferpräparate.

Demonstrations of Some Preparations of Teeth and Jaws.

Die Ausgleichung von Zahndefekten mittels Porzellaneinlagen.

Some Very Rare Cases of Gunshot and Spear Wounds in the Tusks of Elephants.

On a Pathogenic Yeast-Fungus Found in the Oral Cavity.

Ueber einen Pathogenen Sprosspilz der Mundhöhle.

Ueber den Bau des Molaren vom Elephas Indicus.

Die Bakterio-Pathologie der Zahnpulpa.

Recurrent (So-called Secondary) Decay of the Teeth with Especial Reference to
the Electrical Theory.

Ueber Herstellungsmethoden gewisser Zahn- und Kieferpräparate.

On Certain Preparations of the Jaw and Teeth and the Methods Employed in Disin-
fection of Dental Instruments by Means of Spirit of Soap.

A Study of Some Dental Anomalies with Reference to Eburnitis.

Pathologische Prozesse an einem retenierten Zahne.

Ueber Desinfektion von zahnärztl. Instrumenten mittels Seifenspiritus.

Einige seltene Zahnanomalien.

The Presence of Bacterial Plaques on the Surface of the Teeth and Their Signifi-
cance.

Das Vorkommen eines Bakterienhatchens auf der Oberfläche der Zähne und seine
Bedeutung.

Introduction to the Study of Immunity in its Relation to the Diseases of the Mouth
and Teeth.

Einleitung zum Studium der Frage der relativen Immunität der Mundgebilde gegen-
über parasitären Einflüssen.

Ueber die Transparenz des Zahnbeins und die Wirkung von Säuren auf den Schmelz.

The Question of the Transparency of the Dentin.

Ueber verschiedene Methoden der Behandlung von kranken Zähnen ohne Entfernung
der Pulpa.

On the Comparative Rapidity with which Different Antiseptics Penetrate Decalcified
Dentin; or, What Antiseptics should be used for Sterilizing Cavities before Filling?

Die Röntgenstrahlen im Dienste der Zahnheilkunde.

Notizen über die Erosion der Zähne.

Ueber Symbiosen im Bereich der Mundhöhle und des Verdauungstrakts.

- Versuche und Beobachtungen über die Erosion der Zähne.
 Einige sehr seltene Fälle von Verletzungen an den Stosszähnen des Elefanten.
 Die Zahnpflege in der Schule.
 Die Jodoformfrage.
 Die Notwendigkeit der zahnärztl. Schulung für den praktischen Arzt.
 Die Wehrkräfte des menschlichen Organismus.
 New Theories Concerning Decay of Teeth.
 Pathological Processes in Extra-Oral Teeth.
 Notes on the Erosion of the Teeth.
 Preventive Treatment of the Teeth with Special Reference to the Silver Nitrate.
 Disinfection of Dental Instruments with Formaldehyde.
 Pathological Processes in an Unerrupted Tooth.
 Asepsis and Antisepsis in Practice.
 The Human Mouth as a Focus of Infection.
 Further Experiments Relating to the Question of Immunity.
 Microscopic Examinations of a Case of Caries in a Monkey's Tooth.
 Experiments on the Comparative Value of Various Antiseptics in the Treatment of Diseased Teeth.
 The Decomposition of the Contents of the Dentinal Tubules as a Disturbing Factor in the Treatment of Pulpless Teeth.
 Action of Peroxide of Hydrogen upon the Teeth.
 Die Behandlung des empfindlichen Zahnbeins mit besonderer Berücksichtigung des Druckverfahrens.
 Die Frage der Nützlichkeit der Bakterien des Verdauungstraktes.
 Einige neuere Theorien über die Caries der Zähne.
 Die relative Immunität der Mundgebilde gegenüber parasitären Einflüssen.
 Weitere Studien über die Frage der relativen Immunität gegen Zahncaries.
 Pathologische Prozesse an den Zähnen ausserhalb der Mundhöhle.
 Die präventive Behandlung der Zähne.
 Versuche und Beobachtungen über den Schwund der harten Zahngewebe.
 Selbstheilung der Zahnpulpa.
 Ueber einen pathogenen Sprosspilz der Mundhöhle.
 Das Injektionsverfahren des Herrn Zahnarzt Noah.
 Experiments and Observations on the Wasting of Tooth Tissue Variously Designated as Erosion, Abrasion, Chemical Abrasion, Denudation, etc.
 Ueber pathogene Mundpilze.
 Ueber die Nützlichkeit verschiedener antiseptischer Mittel bei der prophylaktischen Behandlung der Mundhöhle.
 Ueber die Combination von Zinn und Gold als Füllungsmaterial für Zähne.
 Agency of Micro-Organisms in Decay of Human Teeth.
 Zur Kenntnis der Bakterien in der Mundhöhle.
 A Case in Practice.
 Die Anwendbarkeit einiger Antiseptika bei der Behandlung der Krankheiten der Mundhöhle und der Zähne.
 Elektrische Vorgänge im Munde.

Der Einfluss der Mikroorganismen auf der Caries der menschlichen Zahne.

Dental Caries.

Further Contributions on the Subject of Dental Caries.

Caries of Human Teeth.

Ueber die Caries der Zahne.

A Discussion of Questions in Dental Caries.

Fermentation in the Human Mouth: Its Relation to Caries of the Teeth.

Biological Studies on the Fungi of the Human Mouth.

Tin and Gold Combined as a Filling Material Electrically and Practically Considered.

A Reply to Some Views on the Putrefactive Theory of Decay.

Prehistoric Teeth.

The Agency of Acids in the Production of Caries of the Human Teeth. With Comparative Analysis of Carious Dentin and Dentin Softened by Acids.

Gahrungsvorgänge im menschlichen Munde: ihre Beziehung zur Caries der Zahne und zu diversen Krankheiten.

Glossen zu Pasteur's Methode der Behandlung der Hundswut von Ch. W. Dulles, M. D., Philadelphia.

A Comma Bacillus in the Human Mouth.

Ueber Gahrungsvorgänge im Verdauungstraktus und die dabei beteiligten Spaltpilze.

Einige gasbildende Spaltpilze des Verdauungstraktus: ihr Schicksal im Magen und ihre Reaktion auf verschiedene Speisen.

On Certain Fermentative Processes in the Alimentary Canal and the Micro-organisms by which They are Produced.

On Certain Gas-forming Bacteria of the Alimentary Canal; Their Fate in the Stomach and their Reaction on Different Foods.

Ueber den jetzigen Stand unserer Kenntnisse der parasitären Krankheiten der Mundhöhle und der Zahne.

The Density of Teeth as Influenced by the Food and by the Administration of Lime Salts.

Zahnschmerzen und Zahnpflege.

Ueber die Nutzbarkeit verschiedener antiseptischer Mittel bei der prophylaktischen Behandlung der Mundhöhle.

Restoration of the Contour of Carious Teeth by Means of Porcelain.

Die prophylaktische Behandlung der Zahne.

Wörterbuch der Bakterienkunde.

Der Einfluss der Nahrung auf die Zahne.

Wiederherstellung der Kontur carios gewordener Zahne durch Porzellanstücke.

Dr. Miller's principal work and greatest gift to the profession is, however, his "Microorganisms of the Human Mouth," the result of long and tireless experimentation. This work alone has made his name a household word wherever scientific dentistry is known and practiced. Many of his best papers showing the result of his observations were published in "The Independent Practitioner," which was edited by the late Professor W. C. Barrett, of

Buffalo. This journal was the American mouthpiece for Dr. Miller. These papers were more valuable and far-reaching in their results than any before or since published in a dental journal. Speaking of these and of Professor Miller's contribution to dental science, Dr. Barrett says, in a sketch on the career of Dr. Miller, published in "The Dominion Dental Journal," March, 1891:

"At first, Dr. Miller's views were determinedly fought, for they were in direct opposition to everything then believed. But his experience was unanswerable, and soon the best men who were examining the question found that his arguments, and more especially his demonstrations, were irrefutable. The Germans were forced to accept his views; England followed; France was a little slower, and America finally awakened to the fact that she had furnished to the world the man who had solved the problem which had been the professional question of the ages.

"There are few who even now know the extent of his observations and the value of his discoveries. For instance, there was for a long time a great difference of opinion as to whether micro-organisms were the cause or the product of pathological changes, and, simple as the matter now seems, it could not then be solved beyond the question of a doubt or a quibble. Miller began his experiments in producing artificial caries, accomplished it perfectly, and settled the matter for all time, in medicine as well as in dentistry. Outside the human body, where no pathological factor could enter, by pure cultivations of a specific bacterium, he obtained a product identical with that within the body. In other words, he produced structural changes in a solid tissue, under circumstances which forbade the possibility of function having anything to do with it. This alone was enough to have given him immortality among a truly scientific people. There are other great questions which he has determined, and for which the world will give him due credit when they are fully comprehended. That he discovered the true nature of dental caries and established it in the face of all the brilliant and able men who had long held conflicting views is, of course, known to all.

"What has he accomplished? It is difficult to give an adequate idea within the limits of such an article as this. Before he commenced his studies, there was no accepted theory of caries. As many separate opinions were held as there were individual thinkers and experimenters; the most absurd views were advanced, for a majority of the writers had started out with a preconceived hypothesis, to which they endeavored to make the facts conform. Miller went to work the other way. He began his experiments without a theory, deducing that from his observations. It was in brief, this:

"Dental caries is primarily produced by an acid, which is the product of a ferment organism. Fermentation in the mouth does not essentially differ from that out of it; but one of the by-products of that process is this acid, which Miller demonstrated to be identical with lactic acid. This being produced in immediate contact with tooth tissue, dissolves the calcareous portion, thus forming a pocket in which fermentation proceeds with increased vigor. The inorganic elements of the tooth being first dissolved out, the organic portions are destroyed by yet other organisms, and thus decay proceeds.

"It will be seen that some of the causes previously urged are shown to be secondary

factors in decay. Thus, the chemists had declared that it was a chemical solution. Miller shows this to be a fact; but the acids are organic acids, produced in the mouth by fermentative organisms.

"They had declared that these acids were of sufficient power to dissolve tooth tissue, because they were in an inchoate or nascent condition; and this Miller showed to be true, but in a manner quite different from what the chemists imagined.

"Some had declared caries to be an inflammatory process. Miller showed that while this was an error, there was yet some foundation for the assertion.

"Every intelligent dentist who has been in practice a few years will remember how, in dental meetings, we formerly debated this question of etiology, and how anxious we were to solve the problem. We felt it a professional disgrace that we did not know the pathology of decay. We wrangled and disputed, and each urged his peculiar views with the greater pertinacity because he could not incontestably demonstrate them. There is nothing of this now. All clamor is hushed, and there is not a tongue to wag against what Miller has proved to be truth."

Another thing that will cause Dr. Miller's name to live in dental science is the work he has done in giving the profession the key to the problem of the wasting of the teeth. His articles along the line recently appearing are of vital interest to the profession. He recently wrote the writer as follows: *"Although at this date it is not completely settled to my satisfaction, as at this time it is not possible to digest thoroughly the great amount of work which I have done along this line, however, it is hoped that at an early date the question of so-called erosion may be definitely settled as the result of my preparations and experiments, which undoubtedly will bring about the most valuable results."*

It is said of Dr. Miller that he was greedy of but one thing, and that is work. There were not enough hours in a day for his labors, and he borrowed much of the night. His fame was achieved and the great good he has done was accomplished only by one thing—work. While he dreamed, thought and studied of success, yet patient and tireless investigation and experimentation have brought about his great success in solving scientific problems. He, however, found some time for play. He was an enthusiastic athlete, and held at the time of his death the golf championship of Germany and Austria. He was fond of music, although not being capable of musical expression. His special fad outside of his work was philosophical questions on the problems of life, humanitarian enterprises, etc. He was a member of the American Church in Berlin, of which he was the treasurer. He was a Republican in political belief, being an admirer of Roosevelt and honest politics. He was a member of a college fraternity, and also of a dental fraternity, *i. e.*, *Delta Sigma Delta*. As before stated, Dr. Miller was married October 26, 1879, to

Miss C. L. Abbot, in Berlin. To them were born three children, John J., age 27, Katherine O. (now Mrs. Professor Cady, of Middletown, Conn.), and Annabel Edna, aged 12, who with his wife mourn his loss. Mrs. Miller desires to have it recorded that "up to the very last he gave evidence of firm belief in the life hereafter. Neither his scientific pursuits nor the atmosphere of scepticism, in which he had lived so long, had shaken his Christian faith."

Summing up his life, judging from the facts as we know them, the only conclusion that we can arrive at is that his world-wide fame was justly earned. His whole life was one of earnest application and tireless study to advance dentistry, and his death the most serious loss the profession could have sustained at the present time. Taken as he was at the noontide of manly vigor and capacity for usefulness, the profession could probably have better afforded to lose any other man than W. D. Miller. On whom shall his mantle fall? Who will continue this work?

J. LEON WILLIAMS, D. D. S., L. D. S.

MAN OF LETTERS, ARTIST, SCIENTIST.

James Leon Williams, son of Calvin and Susan C. Wells Williams was born in Corcord, Somerset Co., Maine, April 21, 1852. He was the eldest of eight children; his father was a farmer and the first sixteen years of his life were passed on this New England farm, an experience for which he has ever felt the profoundest gratitude. His earliest recollections are associated with scenes on the noble Kennebec river which flowed along one side of the farm. This river and Moxie Mountain, "Old Moxie," thirty miles to the north, were the dramatic features of the landscape which played an important part in the formation of his childhood imagination. One of the first things he can remember was a question he asked his father one day when he was about four years of age. "Father what is on the other side of the mountain?" "The delectable land," was the reply, suggested, no doubt, by the fact that the boy had just completed the reading, with liberal assistance from a fond grandmother, of his first book, "The Pilgrims' Progress." One might say that that early question revealed something of the essentials of a temperament, for the man has always been as curious as the boy to know "what is on the other side of the mountain," and this curiosity, this ardent desire to know, and to test things for himself, has led to strange adventures and experiences.

Before reading "Pilgrim's Progress" the child had learned the alphabet from the family bible, with his grandfather for a teacher. The first step in his book education was accomplished during the time set apart for morning prayers. His grandfather was a Methodist of the old school with strong Calvinistic and Puritan tendencies but his father had revolted from these narrow, hard views and there was endless discussions between the two on religious themes. These discussions doubtless laid the foundation for that deep interest in all religio-philosophical thought which the subject of our sketch has always shown.

Here on the rocky, hilly old farm, where existence was maintained at the cost of a stern and persistent struggle with nature, were laid the foundations for whatever the man has realized in life.



Alfonso Williams

But the imagination of a boy can rise above all hardships and the intimate contact with nature which a country lad may enjoy, vivified by this imagination, is more than a compensation for much hard work. The man remembers some things about this period of childhood which are not easily expressed in words. He recalls the feeling of intense kinship with all living things, and the great dread of death for all living things. This dread amounted at times almost to a mania, as when he shed many tears over the first brook trout that he ever caught. He got over this feeling, however, sufficiently to enjoy many a fishing expedition in the streams and lakes of Maine. But, undoubtedly, the foundation of the belief of the man, that *all life is one* was laid in childhood thoughts, feelings and experiences. From his mother he inherited a great love for flowers, for grand scenery, and everything beautiful in nature and this rich inheritance has played a large part in the "Joy of Life" with him.

The nearest village to the farm was four miles away and so most of the leisure time of childhood was passed in expeditions and adventures about the country. Fishing, bee-hunting, searching for pearls in fresh water, clams, trapping muskrats, mink and other wild creatures, filled up a large part of the playtime of boyhood.

Up to his thirteenth year, Dr. Williams' only school education was obtained at the "little red school house", which at that time was a feature of every New England community. Two years at a high school at Solon followed; the boy and his brother, living at home and walking four miles every day, morning and night. Dr. Williams speaks of himself, at this time, as learning easily, but as an indifferent student. More time was given to reading books of adventure and planning escapades than to his school books. An affair occurred about this time which not only profoundly affected his own life but also changed the fortunes of the whole family. His father, although a liberal minded man, was a severe disciplinarian, punishing disobedience harshly and, the boy thought, not always justly. He left home early one Sunday morning charging the boys not to leave the farm during the day. A little later an older boy from the neighborhood came along with an outfit for bee hunting. The spirit of adventure conquered the fear of punishment and the subject of our sketch was soon "bee tracking" with his older companion. But the bees were elusive and a long day's tramp having failed to locate a nest the boys were returning tired, and the younger one, at least, somewhat apprehensive as to the outcome of his disregard of parental instruction. As they neared home the father was seen approaching with "lightning in his eye and thunder on his brow." The younger boy dropped a few rods behind and while the elder one was receiving the first shock of Jove's wrath, he slipped through the fence

and disappeared in the friendly cover of a neighboring wood. Secure for the moment he sat down to meditate; and his meditations ran something like this: "I am nearly fifteen years of age; I work very hard and get very little for it; my father does not seem to like me and gets angry if I want a day's innocent enjoyment occasionally, the world is wide, and perhaps he will be better pleased if I go away. Anyhow, I shall be better pleased and I will go." And so the boy ran away from home and his father found him in a few days, although he again escaped. But he went home to get his clothing and then a new understanding with his father took place and both saw that each had not quite understood the other.

This affair led to the sale of the farm and the family moved to Vassalboro near Augusta when young Williams had two or three terms at Oak Grove Seminary. While a student here some one gave him a Chicago paper in which a money prize was offered for the best original poem written by a native American, open to all competitors under twenty-one years of age. The age of poetry had succeeded the age of adventure and the sentimental youth sent a contribution of about fifty lines on "The Voyage of Life." He was greatly astounded some weeks later to receive the announcement that he had been awarded the first prize, accompanied by a very complimentary prediction as to his future career.

J. Leon Williams began the study of dentistry in his nineteenth year, under E. J. Roberts, a graduate of the Philadelphia Dental College, who was then practicing at North Vassalboro, but afterwards moved to Augusta, Maine, where he has for many years conducted a large practice. Dr. Williams has always had a very high opinion of his old preceptor's ability as a dentist, and a great admiration for him as a man and he found the task of succeeding him at Vassalboro a very uphill business and the years that he spent here verged on failure so far as his professional life was concerned. He had been in practice about six years before he had saved one hundred dollars and when he had this sum in bank he invested it in a microscope, much to the disgust of his family and friends. But he still wanted to know what was "on the other side of the mountain." At this time Dr. Garretson's "Oral Surgery" took highest rank as a text book in dentistry. Young Williams had not been working many months over his microscope before he became convinced that Garretson's theory of the method of the development of the teeth was wrong. Nor was he quite satisfied with the views of Huxley, whose works he had read, as well as those of Darwin, Tyndal and Spencer. After about two years of this microscopic work, Dr. Williams published his first article on the subject of the development of the teeth in *The Dental Cosmos*. It was this article

which, some time later, led to an invitation from Dr. Geo. E. Mills to come to New York and read a paper before a private dental club in that city.

About his time, an attempt to start a practice in Augusta resulted in a failure and subsequently he made another attempt to establish himself in Lewiston, Maine. It was while here that the invitation above referred to was received from Dr. Mills.

On his arrival in New York, Dr. Williams found that the private dental club was in the institution which Drs. Richmond and Sheffield had just established for exploiting crown and bridge work; and although heartily disapproving of the methods adopted for introducing this, at that time, new system of prosthetic dentistry, he at once recognized the great merit of the system and after having mastered its details he wrote a series of articles, the first which had appeared on the subject, for *The Dental Cosmos*.

The next day after his arrival in New York Dr. Williams went down to 41 East 9th Street, to call on Dr. Wm. H. Atkinson, whose writings he had long been familiar with and admired. Dr. Atkinson himself answered the bell, invited Dr. Williams in most cordially, and after asking a few questions in his rapid, earnest way, shouted out "Clint, Clint, (Dr. Atkinson's eldest son was Dr. Clinton Atkinson) bring up a bottle of champagne, there is a wise man from the East here." This was the beginning of a long and intimate friendship which had a deep effect on the younger man, at least. Dr. Atkinson had a strong, enthusiastic, if somewhat erratic nature, and was as greatly loved and admired by his friends as he was disliked by those who did not understand, or misunderstood him. Dr. Williams says, "He had a wonderful intuitive perception, particularly with those with whom he was *en rapport*. An interesting illustration of this occurred a year or more after I first met him. We were journeying together to Providence, R. I., to attend a dental convention, a meeting of the Connecticut Valley Dental Association, if I remember correctly, where I was to read a paper on the Development of the Teeth. On arriving, we found that Prof. Garretson had been invited to address the Convention and that he had decided to speak *on the subject of my paper* in the afternoon preceding my presentation of the theme in the evening. Of course, I was a good deal upset as I knew he would attack me and I got into quite a state of 'nerves'. The fateful afternoon arrived and Prof. Garretson arose to speak before a crowded assembly of the leading dentists of the New England and Middle Eastern States. In his opening sentences he said that he proposed to burn his bridges behind him. He would take up a position from which retreat was impossible so sure was he of his ground. He then delivered an impassioned attack on Dr. Williams' views of the method of tooth develop-

ment. He ridiculed relying largely on the microscope in such work and said that a sound, philosophical, inductive theory was worth more than all that could be learned by aid of the microscope. At the close of this remarkable address, the late Dr. Thomas Fillebrown gave Dr. Williams a word of cheer and encouragement but Dr. Atkinson smiled and said nothing. The evening came and Dr. Williams, a young and almost unknown man, faced the same audience that in the afternoon had listened to Prof. Garretson's assertions about the sureness of his position, and led up to a quotation from Mrs. Browning's "Aurora Leigh" in which she refers to what her father had taught her. She says:

"Out of books he taught me all the ignorance of men,
And how God in Heaven laughs when any man
Says: '*Here, I'm learned; this, I understand;*
In that I'm never caught at fault or doubt.'"

The shaft went home and Dr. Williams knew from that moment that he had the sympathy of the majority of his audience.

Photograph after photograph was projected on the screen showing the relationship of all the tissues concerned in the development of the teeth. It was seen that the old Goodsir theory of the process of tooth formation, which Garretson had taught, and which up to that time had been generally accepted in America, had no foundation in fact. At the close of his lecture Dr. Williams was immediately elected an honorary member of the Society by an enthusiastic audience. This was his first great success, and he was afterwards informed that it led directly to the founding of the chair of dental histology in the Philadelphia Dental College, of which Prof. Garretson was the Dean. This was in 1883. A year or two after this event Dr. Williams was in Philadelphia when a well known teacher in one of the colleges invited him to attend a clinic by Prof. Garretson. The operation was the removal of a large part of the superior maxilla and malar bones on one side, and the patient, already anesthetised, was just being laid on the operating table beside which Prof. Garretson stood when Dr. Williams and his friend entered the crowded amphitheater. They quietly dropped into seats but not before Garretson's sharp eye had caught sight of them, when he instantly shouted out, "Ah, Dr. Williams, is that you? Well, I am cock of the walk here, anyhow." "And," says Dr. Williams, in relating the circumstance, "he *was* 'cock of the walk' truly, for I never saw a more brilliant piece of oral surgery than he performed that day. In surgery, he was master of the situation, while in histology he was not and that made all the difference."

After six or eight months in New York, Dr. Williams associated himself with Dr. E. S. Gaylord, of New Haven, Conn. It goes without saying he was a fine operator, while here he occupied himself in his spare moments with extensive reading, writing and microscopical investigations. It was while practicing there that he contributed the previously mentioned articles on crown and bridge work to *The Dental Cosmos* which first drew the attention of the profession as a whole to this system. It was also while with Dr. Gaylord that he passed the examination of the Baltimore College of Dental Surgery, and received the degree of D. D. S. At New Haven, his health, which had never been robust, began to break down from repeated attacks of bronchitis and malarial poisoning, and after having been a little less than two years with Dr. Gaylord, he went to Philadelphia and on the advice of the late Dr. J. W. White, the veteran editor of *The Dental Cosmos*, he started practice in that city. Here he improved in health, at the first, and he renewed his scientific studies. At this time the Heitzman theory of the formation and structure of enamel with the inflammatory theory of decay was very much to the fore and its chief advocates in the dental profession were Drs. Bodecker and Abbott. Dr. Williams, on the advice of Dr. Atkinson, spent some time in Prof. Heitzman's laboratory, working under his direction but this experience only served to confirm him in the view he had held for some time that there was no scientific foundation for the Heitzman theory, at least, as applied to the structure of human enamel. By invitation of the First District Dental Society of New York, he prepared a paper on the subject for one of its special meetings. Dr. G. V. Black of Chicago, and many other eminent members of the profession were present at the reading of this paper. Heitzman, Bodecker, and Abbott were a power in dentistry at that time and Heitzman, especially, was an effective debator. In discussing Dr. Williams' paper, he indulged largely in ridicule and told a funny story about a young man whose education had been greatly delayed and when at last some one taught him the alphabet he became so impressed with the wonderful benefits of education that he at once started as a teacher. It was an effective little invention but Dr. Williams retorted with a quotation from Josh Billings, "I would rather not know so much than to know *so many things that ar'nt so.*" Drs. Black and N. Y. Sudduth defended Dr. Williams' position on this occasion and Dr. Black, with a warning finger pointed toward Heitzman, advised him to beware of the earnest young men when they got on his track. The result of this discussion on the audience, aside from a few experts, was to leave the chief question in doubt.

While in Philadelphia, Dr. Williams undertook an investigation of the

celebrated Keeley "Motor" with a view to the preparation of an article for *The Century Magazine*. It may be that John W. Keeley and his work are now well nigh forgotten but twenty-five years ago, the scientific world in America and England was not a little excited at the mention of his name, and although some charged him with being the biggest fraud of the age, there were many eminent men who thoroughly believed in him. Keeley claimed to have discovered a great, new force, which he said was destined to completely revolutionise the application of power to every branch of mechanics. The force, he said, was generated by means of harmonious musical vibrations, acting on water, air or the universal ether and was practically costless. Dr. Williams entered on the investigation of this man's work, an explanation of which had thwarted the utmost efforts of scientific experts for nearly a decade, with great enthusiasm. His first step was to invite a dozen or more of the best known scientific experts in Chicago, New York and Philadelphia to witness an exhibition of the application of this force to various mechanical uses. Dr. Williams, unfortunately, never preserved a list of the names of those present at this strange exhibition but he remembers that Prof. Hodges, then editor of "Science," Dr. Hall, editor of the "Scientific Arena," an electrical expert from Chicago, connected with the famous Bell-Drawbaugh telephone litigation, Dr. Wm. H. Atkinson, and several well known authorities in electrical and other branches of mechanics, were present. Strange and wonderful exhibitions of force were witnessed by the little company gathered in Keeley's workshop on that occasion, a brief description of which would occupy more space than can be given to this entire sketch. For three hours phenomena were exhibited which seemed to set at defiance all known laws of matter. On coming out of the place, Dr. Williams immediately asked Prof. Hodges his opinion of what had been seen. Hodges' reply was "I feel as though I had been in another world subject to different laws from ours. Keeley's manner invites suspicion but I have no vestige of an explanation to offer for what we have seen." Several meetings of this sort were held and while Keeley always seemed perfectly willing to give detailed explanations on any point, yet his language never gave much clue to what was being done for the reason that the terms which he used to explain the production and application of his force were new and original and not convertible into any scientific language in use. But now, after more than twenty years have passed, a strange thing has happened. Gustav le Bon, in his recently published book on "The Constitution of Matter," claims to have anticipated most, if not all, of the discoveries which have resulted in such a profound modification of our views of matter as has taken place in the last few years, and he has made it fairly clear that his claim is well founded so

far as his contemporaries are concerned. He also claims to have invented the expression "inter-atomic force" and several others which are used to express and explain the new views of matter and force. Now, Dr. Williams is able to prove that most of these expressions were in every day use by Keeley, in his effort to explain his own alleged discoveries, for more than fifteen years prior to the date of Gustav le Bon's first recorded experiment. That is a most significant fact and one to which Dr. Williams will shortly call the attention of the scientific world in a special article devoted to this subject. Dr. Williams visited Keeley many times alone and photographed all of his machinery and apparatus and he believes that these photographs are the only ones in existence, apart from those taken by Mr. Colyer, Keeley's lawyer. He always found Mr. Keeley most cordial and willing to explain anything until one day, after many visits and much thinking and pondering over what he had seen, he said, "Mr. Keeley, there is only one thing now I wish to see and then I am ready to put my notes together into a magazine article." "Well," replied Keeley, "what is that?" "You have often remarked," said Dr. Williams, "that the force which you generate and with which you charge these steel cylinders is produced in a few seconds." "Yes," replied Keeley, "that is quite correct." "Well then," said Williams, "I should like to see those cylinders charged and discharged into the room two or three times." Dr. Williams speaks of Keeley's face as one of the strongest he has ever seen, with something of a demonic look when displeased. In describing this incident, he says, "Keeley gave me a long look when he heard that request, a look which made me feel that he would like to annihilate me and then, turning quickly, without a word, he passed into an adjoining room and closed the door. And that was the last time that I ever saw John Worrel Keeley. Had I traced his secret into its last lurking place? I do not know but there was evidently something surrounding the alleged process of generating the force which he did not wish to reveal to me." Of course, the proposed article was abandoned but Dr. Williams still believes that Keeley had really discovered a new force, although, perhaps often resorting to trickery to deceive or satisfy the stockholders of his company in the effort to gain time for further experiments, and he will give his reasons for this belief in the forthcoming paper above mentioned.

Two or three weeks after the incident above described, Dr. Williams sailed for England en route for Switzerland, where he hoped to get rid of the bronchial trouble which had again become serious. On his arrival in London, an American lady, who was a great friend and admirer of Keeley's, having heard from New York of Dr. Williams' investigations and of his departure for England, looked him up and invited him to spend an evening at her house.

He went and there met and described his experiences to the poet Browning, who had been for some time greatly interested in what he had been hearing about Keeley.

After having been in England a few weeks, Dr. Williams noticed that the bronchial trouble from which he had suffered so long was rapidly passing away, so he decided to remain. He sent for his wife and on her arrival they went to Stratford-on-Avon and there he planned and began the preparation of a large illustrated work which was subsequently published by Chas. Scribner's Sons, under the title of "The Home and Haunts of Shakespeare." This book has had a large success in America, England and the Colonies, more than twelve thousand copies of the fifteen dollar edition having been disposed of.

The outdoor life, incident to the making of this book, so far restored his health that Dr. Williams decided to settle in London. He qualified himself for practice there by taking the degree of L. D. S. from the Royal College of Surgeons of Ireland. In a few years he built up a large and lucrative practice, gaining as patients many of the best known people in England. Like Kipling's ship, he had at last "found himself."

His career in England has been remarkable in a sense. That he is almost universally liked and respected by the English dentists, who have, as a rule, a distaste of American practitioners. Dr. Williams also planned a large book on the scenery of Tennyson's poems and with a letter of introduction from Lord Leighton, president of the Royal Academy; he visited Tennyson at his home in the Isle of Wight and discussed the project with him. But the great expense involved, deterred the publishers from undertaking this work. Prior to going to England he took up outdoor photography doing some fine work which was so fully appreciated by Putnam & Sons, publishers, they made a special holiday edition of Irving's "Legend of Sleepy Hollow," the illustrations being prepared by Dr. Williams direct from his own camera.

Soon after Dr. Williams was asked to review Bodecker's "Anatomy and Pathology of the Teeth," which had appeared after he left America. Mindful of what is often said about reviewers, he read the book carefully, although he had long been familiar with the substance of the work. The reading of the book, however, once more brought vividly before his mind what he regarded as the fundamental errors of the Heitzman theory and then and there he determined to explore that subject to the uttermost limit of his ability. He ordered the most complete and perfect outfit for microscopic work that the celebrated firm of Carl Zeiss at Jena could supply and went to work. He gave the leisure time of nearly four years to the study of the development, forma-

tion and pathology of enamel, and became famous as a scientist and as an expert in micro-photography.

The result of the larger part of this work was embodied in the papers which were presented before the Royal Society of Great Britain and the Odontological Society of New York. Prof. Heitzman had died a short time before Dr. Williams arrived in New York in the hope of once more meeting his former antagonist, Dr. Bodecker did not appear at the meeting and in the discussion of the paper there was no word of defence uttered for the Heitzman theories. Dr. Williams had waited many years for his triumph but when it came it was complete and final. The subject has never been raised since.

The results of this work have been copied into nearly all the text books dealing with such subjects that have since appeared, and as further recognition of the value of the work, Dr. Williams has been made an honorary member of many of the leading dental societies of the world, including the Odontological Society of New York and the *Societe Odontologique de France*. The last, and in some respects the most remarkable results of this long investigation, dealing with the formation and structure of marsupial and other tubular enamels, have never been published. The work was accomplished at an enormous cost of vitality, as it was chiefly done at night, after working all day at the chair, and in 1905, Dr. Williams' health again broke down completely and he gave up practice and started for Sicily, a country he had previously visited twice, and which he regards as one of the most interesting in the world. But this time he got no further than Naples when he was struck down with a long and serious illness from which he has only recently entirely recovered. During the long, enforced rest which this illness necessitated he took up the study of oil painting. In less than a year from the time he began painting, he sold a small picture to an American collector for one thousand dollars and a Bond Street dealer has offered to give his work a special exhibition. He also has in hand the material for a large book, illustrated by himself, to be published under the title "Sicily, Land of Departed Gods and Old Romance." I had hoped to introduce some of his Sicilian experiences in this article, especially a description of how he was lured into a house and locked up by a man whom he supposed was a brigand—how he barricaded the door of his room and passed a sleepless night—how the supposed brigand turned out to be an archaeologist who was determined to entertain him and how they went in great state to the Greek temple of Seggesta. This, and many other thrilling experiences will be described in the forthcoming book above mentioned.

The photographs from Dr. Williams' sketches, which accompany this article, are disappointing. The originals are beautiful in color and very fine



“The Garden of Silence and Sorrow,” Tivoli, near Rome, by J. Leon Williams.



B.

A.

Original Paintings by J. Leon Williams.

in tone relations. They are full of atmosphere and light and the skies are luminous and full of movement. All of this seems lost in the photographs. Each of these sketches, on canvasses 25 x 30 inches in size, were done at one sitting, with the exception of the one entitled "The Garden of Silence and Sorrow" which is a studio picture, painted from sketches, and they have been greatly admired by some of the best artists and critics. Corot, Monet and Sisley are the masters in painting he has especially studied. But Dr. Williams' greatest interest is still in dentistry and he is just now, 1908, with restored health, returning to practice with all his old energy and enthusiasm. He has recently sent for publication two short articles, one to "The Dental Cosmos" on cemented gold matrix linings for amalgam and gold fillings, and the other to the "Items of Interest" in which he has made an appeal for the anatomical improvement and systematization of artificial teeth, a work which greatly needs to be done, which he has asked the whole profession to assist him in bringing about. For a year Dr. Williams was editor of "The Dentist," published in London until failing health compelled him to give it up.

Commenting on his own early failures and later successes, Dr. Williams says: "No young man need be discouraged because success does not attend his first efforts. Let him go on accumulating the raw material for future success. Above all let him make every possible effort to *master something* which he thinks worth mastering. His opportunity is sure to come because it is fixed in the nature of things that it should be so. As a matter of fact, financial success is no very difficult task. At the most it means mediocre ability, tact, compliance with the forms and customs of society, a fund of what is generally called "good nature" and a stronger desire to save money than to spend it. Yes, it is easy to conquer society *on its own terms*. But to preserve your own independence of character, to keep your own ideals inviolate, to maintain harmony in your own internal life and cherish good will for all, to conquer the world *on your own terms* is generally not easy but it is something worth living and working for."

Dr. Williams has been a great reader and realizing early in life that it is only the one book in a hundred that is really worth reading he has cultivated the art of finding that *one*. Among the books which influenced him most in early life he mentions the works of Swendenborg, Emerson, Draper's "Intellectual Development of Europe," Fiske's "System of Cosmic Philosophy," the writings of Darwin, Tyndal, Huxley and Spencer. In poetry his favorite authors are Browning and Walt Whitman. "Poetry," he says, "must have something more than mere sound and classical allusion in it to interest me;

there must be something in it offering some resistance to one's intellectual teeth, and, above all, there must be life, real life."

In recent years he has been greatly interested in certain phases of the philosophy of the East. The recent development in modern science also have a profound interest for him.

Dr. Williams was married in 1872 to Miss Alice P. Robinson at North Vassalboro, Maine. She died in 1881 leaving four children, two sons and two daughters, both of the latter are dead.

Percy N. Williams graduated at the University of Pennsylvania and is practicing dentistry at Ithaca, N. Y., and the younger son Harry is in Colorado. In 1883 Dr. Williams married Estelle Whittier Lunt in New York, a woman of rare qualities, who has been of the greatest assistance in aiding Dr. Williams to realize his highest ideals. She died in London, June 3, 1908.

Outside of dentistry, Dr. Williams has never affiliated himself with any organization except that of Masonry, nor is he an avowed follower of any teacher. As an illustration, his attitude toward Herbert Spencer is that of great admiration for his power of co-ordination and generalization but he has little liking for much of his deductive reasoning, notably his teaching on the subject of mythology about which he thinks he knew next to nothing. He has something approaching contempt for all creeds which he calls "the scrap heap of outworn thoughts." Once in conversation with a well-known writer on religious themes, he expressed sentiments similar to the above, to which the author remarked, "surely you must know that the best thoughts of the greatest minds are embalmed in what you speak of as our creeds." To which Dr. Williams replied, "Friend, I thank thee for that expression 'embalmed.' Surely you *must know* that we never attempt to *embalm* a living thing. It would instantly kill it if we did. We embalm that out of which life has departed in order to preserve this dead form. And that is what your creeds are, the dead, embalmed forms of what was once the living truth."

Dr. Williams has thought deeply on the great problems of life. Although not a pantheist, he believes in the oneness of all life and to him every form of organic or inorganic existence is an expression of the Infinite. He believes that man is the arbiter of his own destiny and that there is an absolute law of compensation in the universe in obedience to which man's own will always sooner or later come to him. The so-called philosophy of determinatism, which the followers of Haeckel and others profess to believe, he regards as a stultification of all human conduct, and an insult to reason.

And, finally, he believes with Walt Whitman that "death is far otherwise and better than you think," and that in very truth there is a Delectable Land "on the other side of the mountain."

EDWARD CAMERON KIRK, D. D. S., Sc. D.

AUTHOR, INVESTIGATOR, EDITOR, TEACHER.

The words of Lowell, "No man is born into the world, whose work is not born with him," aptly applies to Edward Cameron Kirk, a descendant of Irish Quaker parentage, who was born in Sterling, Illinois, December 9, 1856. His father was Brigadier General Edward N. Kirk, U. S. A., whose death was caused as the result of a gunshot wound received at the battle of Stone River, December 31, 1862. Soon after this young Kirk removed with his mother to Philadelphia. Here he received a thorough preliminary education and at the age of eighteen became a teacher in chemistry, a subject which he intended to make his life work. He was first an assistant to Professor Frazer and next to Professor Sadtler of the Chemical Department of the Towne Scientific School of the University of Pennsylvania. Here he displayed remarkable thoroughness, logic and "unquenchable thirst for truth. All three the distinctive characteristics of his make-up.

His chief, the late Professor Frederick A. Genth, who reorganized the Department, desired young Kirk to undertake the performance of duties that seemed incompatible with the time at his disposal, to do them justice. This led to a disagreement and the resignation of young Kirk. His entrance into dentistry was incited by Professor C. N. Pierce, whose kindly influence also has inspired many other young men to choose dentistry as his calling. It has been said "That chemistry lost a great factor when Kirk entered the study of dentistry," but the law of compensation in this, as in all things, was manifested, for chemistry's loss was the gain of dentistry and of biology.

To acquire a thorough foundation for his dental career he began to study in the Medical Department of the University of Pennsylvania, session of 1876-7. In October, 1877, he matriculated in the Pennsylvania College of Dental Surgery, from which institution he graduated with the D. D. S. degree in 1878. Immediately following his graduation his connection with the newly organized Dental Department of the University of Pennsylvania began. Of this he was first a demonstrator, next a lecturer on Operative Dentistry. Since



Edward C. Kirk

January 1, 1896, he has been Dean of the Faculty and Professor of Clinical Dentistry.

Dr. Kirk conducted a private practice for a time but his many outside duties compelled him to devote all his time to his college and journalistic work for, in 1891, he succeeded Dr. James W. White as editor of "The Dental Cosmos." His selection for this position was made by Dr. White before his death. His literary contributions are many and on a variety of subjects. His "Cosmos" editorials especially are of merit.

Besides contributing the chapters on "Dental Metallurgy," and "The Hygienic Relations of Artificial Dentures" in Litch's "American System of Dentistry," and the article on "Dentistry" in the Encyclopedia Britannica and in the Encyclopedia Americana, he has edited the American Text-Book of Operative Dentistry, to which he contributed the chapter on the "Discoloration of the Teeth and Their Treatment." The results of his studies and scientific investigations since his advent into dentistry are recorded in the leading dental publications, American and foreign, of which the following is a list:

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Dr. Kirk has been a prominent factor in dental societies from the beginning of his professional career. He has filled offices of trust and responsibility, and carried to a successful end issues of transcendent importance. The Dental Act of Pennsylvania, passed by the Legislature in 1897, is the product of his efforts. Practically unassisted and at the sacrifice of time and money, he succeeded in giving the State of Pennsylvania the statute which has ever since governed the practice of dentistry in that State. He has been president of the Pennsylvania State Dental Society, the Odontological Society of Pennsylvania, the Academy of Stomatology of Philadelphia, honorary president of the Fourteenth International Congress of Medicine, member of the Pennsylvania State Board of Dental Examiners, Secretary General and member of the Committee on Organization of the Fourth International Dental Congress, 1904, at St. Louis, and is at present Secretary General of the *Federation Dentaire Internationale*, member of the American Association for the Advancement of Science, the Pathological Society of Philadelphia, the American Academy of Dental Science, the National Dental Association, the National Association of Dental Faculties, the Pennsylvania State Dental Society, the First District Dental Society, of the State of New York, and honorary member of the Mexican Dental Society, the New York State Dental Society and the St. Louis Society of Dental Science.

He has liberally enriched the literature of dentistry as writer and editor and raised its standard as a teacher, and this, as well as his professional altruism, has been publicly and officially recognized upon at least three occasions. In 1903 the Northwestern University at Chicago conferred upon him the degree of Doctor of Science. Shortly afterward the Societe d'Odontologie of Paris awarded him its quinquennial gold medal as a testimonial of high esteem and thorough appreciation of his interesting and instructive scientific

investigations, and recently the decoration of Officer d' Academie—one of the highest forms of recognition of learning in the gift of the French Government—was conferred upon him.

As an essayist and debator Dr. Kirk is in demand. He is truly a man of many talents and of much versatility, a ready wit and prolific story teller, always with an anecdote to illustrate his point. He is a most agreeable conversationalist and companion. At his home in Lansdown he has a workshop fitted with lathes, gas and gasoline engines, etc., where he "makes things," for mechanics is his recreation, as is the breeding of thoroughbred bull terrier dogs and blooded chickens. Music and art he also is thoroughly conversant with, and can discuss intelligently.

Years ago Dr. Horatio C. Wood, a medical teacher and editor, said to Dr. Kirk, "The D. D. S. degree will always be a badge of partial culture." Dr. Kirk has put the best years of his life, thirty years in all, to proving this utterance inconsistent and incorrect. Truly, the late Dr. Henry H. Burchard was correct when he wrote on the fly-leaf of a copy of his "Text-book on Dental Pathology," which he presented to Dr. Kirk, "Ever since you entered the profession you have been a moral and intellectual force, operating to elevate the standard of dentistry to what it should be and what it can be."

EUGENE SOLOMON TALBOT, D. D. S., M. D., M. S., LL. D.

INVESTIGATOR AND SCIENTIST.

The subject of this sketch is one of our most prolific writers and assiduous scientists. He has contributed much to our professional advancement and has aided materially in giving our profession standing with the medical profession. Although he has written much on orthodontia, so-called "pyorrhœa alveolaris" and degeneracy, he has always kept up a general dental practice, believing that a specialty narrows a man. His entire time outside of his practice has been given up to research. Of the ninety-seven papers he has written and published, nearly ninety of them are the result of original research and investigation. This research work has been done in the spare moments of a busy practice. The subject of this sketch informs the writer that he believes he is now doing his best work, a work laid out thirty-five years ago, the foundation of which is based on the law of economy of growth or use and disuse of structures. All of his papers have been based on his researches on evolution and degeneracy: they are all connected, and the entire pathology of the head, face, jaws and teeth is worked out along those lines.

Eugene Solomon Talbot was born at Sharon, Massachusetts, March 8, 1847; he is the descendant of an old English family resident in the United States for more than two centuries. The Talbot family, an old Norman one, entered England with William the Conqueror, and has branches in France, England, Ireland and the United States. Peter Talbot, the head of the Lancashire branch (and ancestor of the branch to which Dr. Talbot belongs), was seized by a press-gang and carried to a ship, bound for Rhode Island, whence he escaped, living many years thereafter at Dorchester, Massachusetts. He made several unsuccessful attempts to return to England, but finally reconciled himself to the situation. He married Mary Wadel, January 12, 1688. In 1686, in company with several others, he had bought a tract of land in Chelmsford, on which Lowell, Massachusetts, now stands. Owing to Indian raids, however, he soon returned to Dorchester, later making his home at Milton, Massachusetts, with his son George (born in 1688). This son married Mary Turel in



Eugene S Talbot

1706, and later settled in Stoughton, Massachusetts. Dr. Eugene Solomon Talbot is the son of George Talbot's great-great-grandson Solomon, who on November 26, 1843, married Emily E. Hawes. She was a descendant in the direct line from Richard Hawes, who settled in Dorchester, Massachusetts, in 1635.

Dr. Eugene S. Talbot was the second of a family of ten—five sons and five daughters. He received a public school education, followed by academic training at Stoughtonham Institute, until the age of sixteen years. He worked upon the farm, but becoming interested in mechanics entered the local trowel and knife works during the summer, and later apprenticed himself at the South Boston Locomotive Works, where he was trained to work upon marine engines during the latter part of the Civil War. He became a master mechanic at nineteen and the following winter accepted an offer to take charge of the machinery of a Cuban sugar plantation. Arriving at Philadelphia, however, he secured the position of foreman at the Pennsylvania Railroad repair shops, and after working about six months had accumulated \$100, which he carried in his pocket. On returning to his boarding house after an evening's walk the money was missing. He gave up the Cuban plan, and working long enough to earn money to pay his way, arrived in Chicago in the spring of 1867. After two years' work at his trade he returned to Philadelphia and entered the Pennsylvania College of Dental Surgery, where he was graduated in 1872, returning to Chicago to commence the practice of his profession. In 1878 he entered Rush Medical College, whence he graduated in 1880.

With the belief that dentistry should occupy the place it deserved as a specialty of medicine, he, in 1881, with other dental scientists, secured three radical changes in the medical relations of dental surgery: Chairs on Dental and Oral Surgery were established in the five medical colleges of Chicago. The Section of Stomatology was created in the American Medical Association. The Chicago Dental Infirmary was established, whereby the students were enabled to take a regular medical course of instruction; to have special dental instruction in the dental infirmary, and to be graduated in medicine. This last, however, was not a permanent success. In the spring of 1881 he was elected Professor of Dental Surgery in the Chicago Medical College and in the Woman's Medical College, and Lecturer on Dental Pathology and Surgery in Rush Medical College. From professional exigence he was unable to accept the Chicago Medical College professorship. He accepted the chair in the Rush and in the Woman's Medical College. He has always urged a medical education for dental students and has left no stone unturned in the advocacy of this, believing that no scientific progress can be made without a broad knowledge

thus obtained. The necessity has in consequence become more and more recognized.

Dr. Talbot was a delegate to the Seventh International Medical Congress, which met in 1881 in London, and to the Ninth International Medical Congress, which met in Washington in 1887. He was honorary president of the Tenth International Medical Congress, which met in Berlin in 1890, and honorary president of the Twelfth International Medical Congress, Moscow, 1897. He was a member of the Thirteenth International Medical Congress, held in Paris, 1900; secretary of the Section on Dental and Buccal Surgery at the Pan-American Medical Congress, Havana, February 4, 1901; honorary president of the Lewis and Clark Dental Congress, held in Portland, 1905. Through his scientific researches he was elected Fellow of the Chicago Academy of Medicine in 1892 (and has been a director of that body for seven years); also a member of the Chicago Academy of Sciences. His researches have been recognized abroad by his election as an honorary member of the Odontologische Gesellschaft, Berlin, Germany; the Association Generale des Dentistes de France, Paris, France, and Sociedad Odontologica Espanola, Madrid, Spain, as well as of many local and State societies in this country. In 1901 he was elected corresponding member of the Dansk-Tandlaegerforening, and in 1904 honorary member of the Stomatology Society of Hungary. In 1907 he was made vice-president of the American Medical Association; also in the same year a member of the First Congress of Stomatology, Paris. In 1907 he was made honorary president of the International Congress of Stomatology. He has been secretary of the Section on Stomatology of the American Medical Association (of which he was one of the founders) for the past twenty years. He was secretary of the Dental and Oral Section of the Pan-American Medical Congress, which met in Washington in 1893, and a member of the World's Columbian Dental Congress, which met in Chicago in 1893.

Dr. Talbot has made the following literary contributions to science:

"The Irregularities of the Teeth," first edition, 1888. "The Irregularities of the Teeth," second edition, 1890. "Chart of Typical Forms of Irregularities of the Teeth," 1891. "The Etiology of Osseous Deformities of the Head, Face, Jaws and Teeth," third edition, 1894. "Degeneracy: Its Causes, Signs and Results" (London), 1898. "Interstitial Gingivitis or So-called Pyorrhœa Alveolaris," 1899. "Irregularities of the Teeth," fourth edition, 1901. "Quiz Compend on Irregularities of the Teeth," 1901. "Irregularities of the Teeth," fifth edition, 1903. "Developmental Pathology," 1905. Papers: "Education, Dental Colleges," *Dental Cosmos*, 1876. "Mercury, Chemical and Physiological Action of Fillings on the System," *Dental Cosmos*, 1879. "Preparation of Nerve-canals for Treatment and Fillings," *Dental Cosmos*, October, 1880. "Gold Crowns," *Dental Cosmos*, September, 1880. "Screws for Artificial Crowns,"

Dental Cosmos, March, 1881. "Treatment and Filling of Approximal Cavities," *Dental Cosmos*, December, 1881. "The Regulation of Teeth by Direct Pressure," *Dental Cosmos*, November, 1881. "Dental Regulating Apparatus," *Dental Cosmos*, May, 1885. "Spreading the Dental Arch," *Dental Cosmos*, January, 1886. "Regulating Individual Teeth," *Dental Cosmos*, May, 1886. "Pyorrhœa Alveolaris," first paper, *Dental Cosmos*, November, 1886. "The Etiology of Irregularities of the Teeth," *Journal American Medical Association*, May, 1888. "Arrest of Development of the Maxillary Bone, due to Race Crossing, Climate and Soil," *Journal American Medical Association*, June, 1888. "Development of the Inferior Maxilla by Exercise, and Asymmetry of the Lateral Halves of the Maxillary Bones," *Journal American Medical Association*, 1888. "Asymmetry of the Maxillary Bones," *Journal American Medical Association*, 1888. "The Alveolar Process," *Journal American Medical Association*, 1888. "The Origin and Development of the V and Saddle Arches and Kindred Irregularities of the Teeth," *Journal American Medical Association*, 1889. "Classification of Typical Irregularities of the Maxillæ and Teeth," *Dental Cosmos*, August, 1889. "Statistics of Constitutional and Development Irregularities of the Jaws and Teeth of Normal Idiotic, Deaf and Dumb, Blind and Insane Persons," *Dental Cosmos*, July, 1889. "Fallacies of Some of the Old Theories of Irregularities of Teeth, with Some Remarks on Diagnosis and Treatment," *Dental Cosmos*, March, 1890. "The Teeth and Jaws of a Party of Cave and Cliff-Dwellers," *Dental Cosmos*, May, 1890. "The Differentiation of Anterior Protrusions of the Upper Maxilla and Teeth," *International Medical Congress*, Berlin, *Dental Cosmos*, August, 1890. "Mouth-Breathing Not the Cause of Contracted Jaws and High Vaults," 1891. "Management of Dental Societies," *Dental Cosmos*, January, 1891. "Studies of Criminals," *Alienist and Neurologist*, October, 1891. "Scientific Investigation of the Cranium and Jaws," *Dental Cosmos*, May, 1891. "Evidence of Somatic Origin of Inebriety," *Journal of Inebriety*, July, 1891. "A Study of the Degeneracy of the Jaws of the Human Race," *Dental Cosmos*, 1892. "Empyema of the Antrum," *Journal American Medical Association*, 1893. "The Vault in Its Relation to the Jaws and Nose," *Dental Practitioner and Advertiser*, October, 1894. "Stigmata of Degeneracy in the Aristocracy and Regicides," *Journal American Medical Association*, November, 1894. "The Degenerate Ear," *Journal American Medical Association*, January, 1893. "Pyorrhœa Alveolaris," Second Paper, *International Dental Journal*, *Dental Cosmos*, 1896. "Dental and Facial Evidences of Constitutional Defect," *International Dental Journal*, May, 1896. "H. H. Holmes," *Journal American Medical Association*, August, 1896. "Degeneracy of the Teeth and Jaws," *Journal American Medical Association*, 1896. "Pyorrhœa Alveolaris," Third Paper, *Journal American Medical Association*, 1896. "Oral Hygiene," *Twelfth International Medical Congress*, Moscow, 1897. "Auto-Intoxication in Its Medical and Surgical Relations to the Jaws and Teeth," *Journal American Medical Association*, April 17, 1897. "Pyorrhœa Alveolaris in Mercurial and Lead Poisoning and Scurvy," Fourth Paper, *Journal American Medical Association*, 1898. "Degeneracy in Its Relation to Deformities of the Jaws and Irregularities of the Teeth," *Chicago Dental Review*, 1898. "A Study of the Stigmata of Degeneracy Among the American Criminal Youth," *Journal American Medical Association*, 1898. "Irregularities of the Dental Arch," 1898. "A Study of the Deformities of the Jaws Among the Degenerate Classes of Europe," *International Dental Jour-*

nal, January, 1898. "Inheritance of Circumcision Effects," *Medicine*, June, 1898. "What Became of the Dauphin Louis XVII? A Study in Dental Jurisprudence," *Medicine*, June, 1899. "Interstitial Gingivitis Due to Auto-Intoxication," *International Dental Journal*, February, 1900. "Traitement de la Phorrhie Alveolo-dentaire," *Thirteenth International Medical Congress*, Paris, 1900. "Limitations in Dental Education," Section in Stomatology, *American Medical Association*, June, 1900. "Interstitial Gingivitis from Indigestion Auto-Intoxication," Section on Stomatology, *American Medical Association*, June 5, 1900. "Interstitial Gingivitis as a Prominent Obvious Early Symptom of Auto-Intoxication and Drug Poisoning," *Chicago Medical Society*, May, 1901. "Degeneracy of the Dental Pulp," Section on Stomatology, *American Medical Association*, June, 1901. "Degeneracy and Political Assassination," *Medicine*, December, 1901. "The Higher Plane of Dentistry," *Revue de Stomatologie*, Paris, 1902. "Juvenile Female Delinquents," *The Alienist and Neurologist*, 1901-02. "Stigmata of Degeneracy," *The Medical Examiner and Practitioner*, March, 1902. "Evolution of the Pulp," *Journal American Medical Association*, 1902. "Why Dentists do not Read," *International Dental Journal*, 1903. "How Far do Stomatologic Indications Warrant Constitutional Treatment?" *International Dental Journal*, 1903. "Syphilitic Interstitial Gingivitis," *International Dental Journal*, 1903. "Gum Massage," *International Dental Journal*, 1903. "The Vaso-Motor System of the Pulp," *Journal American Medical Association*, 1903. "Recognition of the D. D. S. Degree by the American Medical Association," *Dental Journals*, 1903. "What the Physician or Surgeon Should Know of Dentistry," *Illinois Medical Bulletin*, 1903. "Pathogeny of Osteomalacia or Senile Atrophy," *The Dental Digest*, September, 1903. "Endarteritis Obliterans and Hypertrophy of the Arterial Coats," *The Dental Digest*, October, 1903. "Buccal Expressions of Constitutional States," *Medicine*, October, 1903. "Constitutional Causes of Tooth Decay," *The Dental Digest*, December, 1903. "Pathology of Root Absorption and Alveolar Process," *The Dental Digest*, March, 1904. "The Relations of the Nose and Genitalia," *Medicine*, April, 1904.

Of these contributions to science, the works on Degeneracy, Interstitial Gingivitis and Irregularities of the Teeth have attracted world-wide attention. All three works, originated in researches upon the causes of irregularities of the jaws and teeth. These have received extended commendation from leading European, Continental, British and American dental, medical and scientific journals. The value to science of Dr. Talbot's contributions has been widely recognized by colleges, universities and institutions of scientific research which have placed his works in their libraries. The colleges evinced a further recognition by conferring the M. S. and LL. D. degrees upon him.

Dr. Talbot has devised several useful appliances in dentistry. Among these may be mentioned a screw post with a round base instead of V shaped, with a sharp pointed thread to cut into the dentin, thus making it stronger and less liable to twist off. A three-cornered pulp canal reamer; a hot-air apparatus for making celluloid plates; and many appliances for regulating teeth,

as well as a number of combinations of drugs used in the treatment of the teeth.

Dr. Talbot was married by Rev. Robert Collyer and Prof. David Swing, in 1876, to Miss Flora Estey, the daughter of Mr. Willis Estey, formerly of Dover, New Hampshire, and has three children, two daughters and one son. He is a Unitarian in faith, and has been a member of the Unity (Robert Collyer's) Church for the past forty years, and is now one of its trustees.

ROBERT ROLLINS ANDREWS, A. M., D. D. S., F. R. M. S.

DENTAL SCIENTIST.

Robert Robbins Andrews, son of Thomas Jefferson and Jerusha Baker Robbins Andrews, was born at Boston, August 7, 1844. His father was a custom house officer and his greatgrandfather was Robert Lash, a friend of Paul Revere. He was a ship builder, contemporary with John Hart, the builder of the old frigate "The Constitution." He was also a Revolutionary soldier, whose sufferings as a prisoner of war, in the old mill prison in England, are a tradition among his descendants to-day. His son, Robert Lash, of Chelsea, Mass., commanded the Knights Templar at the laying of the corner-stone of Bunker Hill Monument. Robert Robbins Andrews' mother's father, Joseph Robbins, was the first shell comb maker in this country. He came from England, and settled in Newbury Newton, Mass. He was said to be an artist in his work, and I am told that many of the antique shell combs prized by the old families are the work of his hands. His son, Dr. Robert L. Robbins, the uncle and the preceptor of Robert, the subject of this sketch, practiced dentistry for over 40 years in Boston, and carved all the teeth he used.

Young Robert was the fourth of five boys. His father died when he was 4 years old. His oldest brother was the late Rev. C. D. Andrews, D. D., of Christ Church, St. Paul, Minn., who died in 1907. He also has two sisters, the oldest Mrs. M. A. Denison, a well-known writer and author of many books. She wrote "That Husband of Mine," that had a sale of over three hundred thousand copies. She has written many poems and stories for magazines, and is still writing, although over eighty years of age.

Young Andrews' early boyhood was spent in Chelsea, Mass., Washington, D. C.; Camden, N. J.; Buffalo, N. Y., and in Hyde Park, Mass. He attended the common schools in each city. To learn dentistry he served seven years with his uncle, Dr. R. L. Robbins, of Boston, Mass., from the time he was 14 years of age until he was 21. He served two years in the army during the Civil War, as a private soldier and as an officer. He entered as a private soldier in the fall of 1862, in Co. H, Forty-seventh Regt. Mass. Vols., and came home



Robert R. Andrews.

as a sergeant. He enlisted again in Co. 3, Sixtieth Mass. Vols., as a lieutenant, and was acting on the staff, as acting quartermaster or adjutant, almost all the time he was with the regiment. He was under General Butler and General Banks, serving from the fall of 1862 to the fall of 1864. He graduated as D. D. S. from the Boston Dental College in 1875, paying his college fees the last year by demonstrating dental embryology to his classmates. After graduating, he was made Professor of Dental Histology and taught for seven years.

His first year of practice was in Boston; he also had an office in Hyde Park, Mass., where he practiced two days in the week. Early in 1869 he located at Cambridge, Mass., and has practiced his profession there ever since. In 1892 he received the honorary degree of A. M. from Dartmouth College in recognition of his research work in dental embryology. Has been deeply interested in microscopical work for over thirty years, and has done much original research work along this line and made many valuable contributions on this topic to our literature. His most important paper was upon "*Enamel, and the Minute Processes Taking Place During Its Development.*" This paper was read at the International Medical Congress at Berlin, in 1890. He was honorary secretary from America to that Congress. He has written numerous papers on dental embryology for the various dental journals, and on the dental tissues in health and in disease, and has done considerable toward demonstrating the process of development before various dental societies all over the country. The following is a list of his contributions:

Methods of Photo-Micrographic work, showing also many photographs of Micro-organisms (Boston Society of Medical Sciences, April 29, 1891); A Contribution to the Study of the Enamel (World's Columbian Dental Congress, Chicago, Ill., August 16, 1893); The Origin of the Dental Fibril (International Medical Congress, Washington, D. C., 1887); Calcification and Formation of the Enamel (International Medical Congress, Berlin, Germany, 1890); A Contribution to the Study of the Development of Enamel (read at the Institute of Stomatology, New York, January 6, 1897); "Calcio-Globulin," a Contribution to the Study of the Physiological and Pathological Conditions Attending the Development of the Teeth (read before First District Dental Society, New York, March 8, 1904); The Embryology of the Dental Pulp (American Medical Association, 1902); The Vital Action of the Dental Pulp (American Medical Association, 1904); The Formation of the Enamel (Union Dental Meeting, Boston, 1891); A Study in Dental Pathology, Including Pits and Fissures of the Enamel and Inter-Globular Spaces in Dentin (American Medical Association, 1889); "Calcification" (The American Medical Association, 1895); On the Formation of the Teeth, and the Reasons Why the Protecting Covering is so Often Defective or Deficient (Institute of Stomatology, New York, May, 1906); A Method of Making Photo-Micrographs with the Higher Powers of the Microscope (Pan-American Medical Congress, 1893); Address delivered in the Section of Stomatology (American Medical Association, June, 1897),

calling attention to the fact that he had found in his research work that the decaying substance of a defective tooth was a culture medium for the growth of the germ and of the bacilli of tuberculosis, and calling attention to the importance of the examination of the mouths of the children in our public schools.

At the present time (1908), Dr. Andrews is interested in the subject of the examination of the teeth of children in the public schools, hoping before a great while to see the schools of Boston and Cambridge in the hands of the dental examiner. The following quoted in part from "The Journal of the American Medical Association," 1897, expresses his ideas along this line:

"This matter is a subject that merits our earnest consideration. Within the past year there has been a movement on the part of some of the dentists of the city of Baltimore to bring about the enactment of a law that shall require the examination of the condition of the mouths and teeth of the children of the public schools. The importance of this movement may not at first thought seem to be as serious as it really is, but if we consider it carefully it will be found grave enough to enlist our most careful consideration, fraught as it is with serious consequences, both to the present and future, and a law of this kind should be enforced in every city in our country. The time of life that the school years cover is very important to the child from the dental standpoint. If the teeth are cared for during this period, the chances favor their permanent retention and for this reason, if for no other, this movement should be urged and encouraged by every intelligent dentist.

"The connection between bacterial growths in the oral cavity and severe disturbance of the general health is today well known. There are those who carry more filth in their mouths than they would tolerate on their skin. And this is the condition of the mouths of many of our school children. There are those whose teeth receive very little, if any, care; on inspection they will be found to be covered with a thick deposit in an active state of fermentation. In these mouths we shall find the gums inflamed, suppurating and decayed roots with chronic abscesses continually discharging their putrefactive products into the mouth. The fact that such mouths may be the source of disease and even death has been very much underrated. It is known that pulmonary diseases are brought about by the 'inspiration' of germs from the oral cavity. The mouth is a veritable breeding place for the infection of the digestive apparatus.

"In an article on carious teeth and tuberculosis cervical glands Stark, in the "*Revue de la Tuberculeuse*," July, 1896, notes the frequent association between carious teeth and enlargement of the cervical lymph glands. He examined 113 children with the enlargement of lymph glands and found that 1 per cent. had carious teeth. Not being able to find any other apparent cause for the condition, he concluded that the swollen glands resulted from the defective teeth. They correspond in situation, in time of development and in the degree of enlargement with the condition of the teeth.

"The involved glands were situated on the same side as the diseased teeth, the anterior glands being enlarged if the incisors were carious, and those at the angle of the jaw when the molars were involved. Toothache frequently preceded the enlargement of the glands. Stark is of the opinion that the enlarged glands are tuberculous in quite a number of these cases.

“The importance of dealing with this subject must commend itself to us. In many of our States there are commissioners whose duty it is to make examination of cattle suspected of having this disease. The cattle found infected are destroyed. Does it seem less reasonable that we should try to prevent our school children becoming infected? It is a matter that should come home to every family, who would surely desire such supervision after understanding the importance of the subject, if by any possibility it would shield their children from this terrible infection. For this reason they would support a law directing such examinations to be made in our public schools.

“The important question we have to consider is: How are these examinations to be brought about? One correspondent states, ‘If your board of school commissioners is the same as ours, a request of this nature would be looked upon as an unwarrantable piece of interference, a bid to obtain practice.’ This same writer, however, acknowledges the true charity and philanthropy of the movement. Another says, ‘If the dental societies are sufficiently in earnest and sufficiently united to pledge themselves to furnish competent members of their bodies at regular periods of each year, a committee from those societies could petition the board of education to appoint an examining dentist to each school.’ This suggestion, it seems to me, is a most excellent one. Our profession should do more in the way of public charity than it does. We do very little compared to the gratuitous services rendered by the medical profession. The first move should be through the State board of education by the State dental organization. All school children under the care of the family dentist should be required to present to the masters of each school a certificate signed by their dentist. This should be considered sufficient evidence of the healthy condition of the child’s mouth. All other children should pass the required examination. An expert could make an examination of each scholar in from three to five minutes. In most of the large cities there are one or more dental colleges with infirmaries for the treatment of all such cases. In these cities the children of the poorer classes should be sent for proper treatment. In cities where there are no colleges, dentists can be appointed by the dental societies to attend to this charity work. The boards of school commissioners in the various States are men of culture and liberal education. They cannot fail to see the necessity for such dental supervision, if the matter is presented to them in the proper manner. It will be apparent that such examinations are for the real interest of the children, and an act of real charity and philanthropy, guarding the common welfare and safety of those under their care.

“The matter is of such vital importance that we should seek the co-operation of every dental organization in this country to aid us in our efforts to bring about the examination and treatment of the mouths of the children in our public schools; who better than they can recognize the justice and importance of this matter. It will save the children from sorrow and suffering, and in many cases such supervision will triumph over disease and death.”

Prof. Andrews wrote the chapter entitled “*The Embryology of the Dental Tissues*” for the first and second editions of Kirk’s “*American Text-Book of Operative Dentistry*.” He also contributed a chapter to “*The Annual of the Universal Medical Sciences*,” 1888. Dr. Andrews was elected a Fellow of the Royal Microscopical Society of Great Britain, May, 1895, and is a member of

The Royal Microscopical Society, and a corresponding member of the Microscopical Society of Belgium, and of several other microscopical societies, and was chairman of the Committee on Microscopy and Bacteriology, World's Columbian Dental Congress, Chicago, 1892; honorary chairman of the Section of Oral and Dental Surgery, Pan-American Medical Congress, 1892. In 1893 he was asked to accept the chair of Histology at the New York Dental School. In recognition of his high standing in the profession Dr. Andrews has been the recipient of many honors. He has served as president of the Massachusetts State Dental Society, The Connecticut Valley Dental Society, The American Academy of Dental Science of Boston (1896). He is a member of the Boston Society of Dental Improvement; the Section of Stomatology of the American Medical Association, and is an honorary member of the New York Odontological Society. The New York Institute of Stomatology, The New Jersey State Dental Society, etc. In 1867 he invented a mallet for condensing gold in filling teeth.

In 1893 Dr. Andrews was asked by Governor W. E. Russell to accept a position as a member of the Massachusetts Board of Registration in Dentistry.

In 1899 Dr. Andrews was elected a trustee of Tufts College and at the present time is a member of the Executive Committee.

Dr. Andrews was married September 14, 1870, to Mary Emily Le Seur, the daughter of Dr. Horatio LeSeur a well-known dentist in Boston, where he practiced dentistry for forty years. Their children are Angeline Richards, wife of Albin L. Richards, Esq.; Ethel Wyman, wife of Prof. Bruce Wyman, of the Harvard Law School; Robert E. Andrews, A. B., M. D. (Harvard); Horatio LeSeur Andrews, D. M. D. (Harvard); the last, his father's office associate in practice.

In National politics Dr. Andrews is a Republican, but is non-partisan in city affairs. He attends the Congregational Church. In 1897 he was elected to membership of the first class in the military Order of the Loyal Legion, Massachusetts Commandery, and is also a member of the University Club of Boston, the Colonial Club of Cambridge and of the Boston Art Club; membership in the latter he has held for twenty-five years. Being fond of art and an amateur artist of no mean ability, he has, in the past, exhibited many of his own paintings there. He has a fine collection of oil paintings, many of them painted for him by his artist friends. Dr. Andrews is a collector of old ivory Japanese carvings and rare pieces of old Satsuma.

His vacation days are passed at his mountain home, "Brookside," in the beautiful town of Randolph, in northern New Hampshire, just under the

northern wall of Mounts Adams and Madison. Here is found excellent trout fishing, and here he loves to entertain his friends.

Dr. Andrews was a former member of the Warren Literary Association and of The Mercantile Library Association of Boston, and sometimes took part in their dramatic entertainments. This caused him to turn his talents to dramatic writing. In 1870 he wrote a comedietta, "Fairly Won," played at the Warren Literary Association, Boston, Mass. In 1870, a comedietta, "Silverstone's Wager," played at Lingard's New Adelpia Theatre, Boston. This play was also given at Selwyn's Theatre. The same year he also wrote a farce, "Wollop's Wooing;" a comedietta, "She's Fast Asleep," and a three-act comedy, "Schemes."

He is fond of music and has written a number of poems which were published at the time in "The Boston Transcript." Among them is "An Ode," "May Be," "Where Father Fell" and "Alone."

The following is part of a poem from the pen of Dr. Andrews, published in "The Boston Transcript" in 1869:

"EVENING."

"The distant hills are purpled in the mist,
And crimsoned boughs sway gently to and fro;
Bright mottled leaves, by balmy zephyrs kissed,
Fall trembling to the mossy bank below.

"The sun sinks slowly on its bed of gold,
The song bird, silent now, is in its nest,
The evening star is blinking o'er the world,
And Nature, fading, lulls herself to rest."

ADELBERT HENRY PECK, M. D., D. D. S.

PRESIDENT NATIONAL DENTAL ASSOCIATION, 1907.

A man's professional worth may be estimated only by the sacrifices, efforts and contributions he makes to his profession. The humble yet regular attendant at dental society meetings contributes, many times, by his presence equally as much as the essayists or clinicians on the programme, but the man who is a composite of an assiduous society attendant, essayist, clinician, and aids in the discussions, besides spending countless hours in arduous committee work, as well as being a well-known teacher and writer, surely deserves recognition and the reward—the highest in the gift of his profession—that it has been the good fortune of the subject of this sketch to receive.

Adelbert Henry Peck was born April 17th, 1862, at Hammond, Wisconsin. His early life was spent on a farm, and his early education was obtained at the village school. In order that he might prepare himself for a useful career he attended the State Normal School at River Falls, Wisconsin, and at the age of seventeen taught his first school. He continued teaching for several years, during the winters, and working on the farm during the summers. In the years 1884 and 1885 he held the position of principal of the graded school of his home town, and was actively interested in educational matters, and was President of the County Teachers' Association. In the fall of 1886 he entered the Chicago College of Dental Surgery from which he graduated as D. D. S. in April, 1888, delivering the valedictory address for his class. The following year he held the position of Adjutant Professor of Operative Dentistry in the Chicago Dental College. In the spring of 1891 he graduated as M. D. from Rush Medical College.

In 1894 Dr. A. W. Harlan resigned the chair of Dental Materia Medica and Theapeutics in the Chicago College of Dental Surgery, and Dr. Peck succeeded him. This position he held for two years, when he resigned and took a similar chair in the Northwestern University Dental School, Dental Pathology being added to the chair. This position he held for five years. In the spring of 1901 Dr. Peck resigned from the Northwestern University Dental School to accept the Deanship of the Dental Department of the Uni-



A. H. Peck, M. A., D. D., S.

versity of Illinois, which position, in connection with the Professorship of Materia Medica, Dental Pathology and Therapeutics, he held for three years, when he resigned college work to devote his entire time and energies to his ever-increasing practice. During his college work Dr. Peck was for three years chairman of the Ad Interim Committee of the National Association of Dental Faculties.

In 1898 Dr. Peck was elected Secretary of the Illinois State Dental Society, which position he held for five years, and was elected President in 1903.

He has been a member of the American Medical Association for the past twelve years, and was one year elected chairman of the Section on Stomatology. For eight years he has been a member of the Chicago Academy of Medicine. During Dr. Geo. H. Cushing's last year as Recording Secretary of the National Dental Association he was his assistant, at the next meeting, in Old Point Comfort, he was elected to the office, and for six years served the Association in that capacity, and last year, 1906, in Atlanta, was elected president. At the Niagara meeting of the National Dental Association, 1902, he was appointed a member of the Organizing Committee of 15, of the Fourth International Dental Congress, and at the first meeting of the Committee in Cincinnati was elected vice-chairman. He was elected chairman of the Program Committee of the Congress, also chairman of Section Four on Oral Hygiene, Prophylaxis, Materia Medica and Therapeutics, and Electro-Therapeutics. He was secretary of the Chicago Dental Society for four years, and one year its president, and several other dental societies, in all of which he shows his interest by frequent participation in their proceedings.

Dr. Peck has been a frequent contributor to the literature of our profession, almost entirely through the various dental societies of which he is a member. Among his contributions we may commend a paper read at the meeting of the Illinois State Dental Society, May, 1894, published in "The Dental Review," June, 1894, on "The Etiology of Dental Caries." Other papers are the following: "Doctorate Address" to the graduating class of the Chicago College of Dental Surgery, April, 1895, published in "The Dental Review," May, 1895; "Compound Proximal Cavities in Bicuspids and Molars," read at a meeting of the Chicago Odontographic Society, and published in "The Dental Review," February, 1896; "Abscesses: Their Cause and Treatment," read at a meeting of the Wisconsin State Dental Society in 1896, and published in the September, 1896, number of "The Dental Review;" "Soldering," read at a meeting of the Chicago Dental Society, and published in the March, 1897, number of "The Dental Review;" "The Essential Oils and Other Agents; Their

Antiseptic Values: Also Their Irritating and Non-Irritating Properties," which was read first at the Illinois State Dental Society in 1898, and by special request at the American Medical Association meeting in Denver, and the Northern Iowa Dental Society. This paper was published in "The Dental Review," August, 1898; "The American Medical Association Journal," "The Dental Cosmos" and "The Dental Digest." This paper was the result of original research work by Dr. Peck. "The Classification and Therapeutics of the Essential Oils and Other Agents Used in Dentistry." "The Teaching of Materia Medica and Therapeutics," read at the National Institute of Dental Pedagogies in Nashville. A paper on "Ethics," read before the New York State Dental Society in 1905, and published in "The Dental Cosmos." Another paper of value was "The Relative Toxicity of Cocaine and Eucaine." This was the result of a large amount of experimental work, using guinea pigs almost entirely, and was first read before the American Medical Association in Columbus, Ohio, 1900, and published in the "Journal of the American Medical Association" and copied by nearly all the other medical journals in the country, and a number in Europe. Dr. Peck joined The Delta Sigma Delta Fraternity while in college and has been prominent in the affairs of the Supreme Chapter. In 1894 he was elected scribe, which office he held for two years, and did the work so well that he was elected supreme grand master in 1896, which office he held for one year. He has been a wise and conservative factor in the guidance of dental society affairs, and the profession has much to thank him for, in the way of counsel and helpful suggestions and for his devotion.

Dr. Peck is a thirty-second degree Mason, and a member of the Mystic Shrine, and a Republican in politics. He always has been fond of outdoor sports such as base-ball, foot-ball, etc. He played base-ball a great deal in his early days. He also has been a devotee to hunting and fishing, which he enjoys each year as his vacation pastimes. He also has devoted considerable time to walking as a recreation, frequently walking part way home after his day's work, a distance of four miles, and then taking a car the balance of the way, occasionally walking the whole distance, making it a rule to walk at least a mile every morning.

The above are the main facts relating to the career and contributions to the profession of the gentleman who occupies the honored position of president of the National Dental Association for 1907.

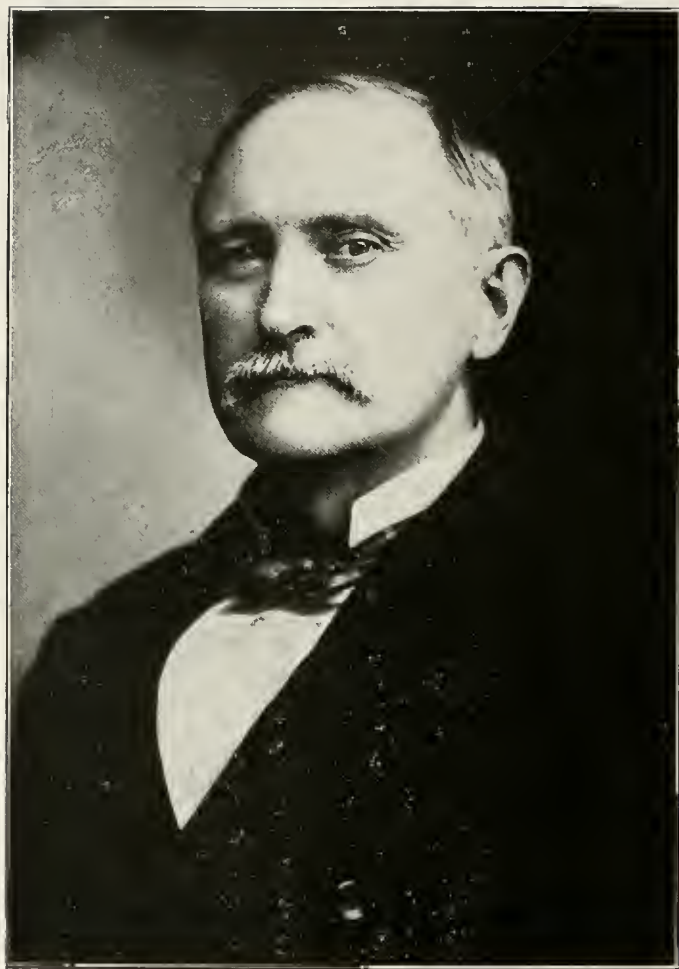
JAMES YOUNG CRAWFORD, M. D., D. D. S.

DENTAL ENTHUSIAST.

Dr. Crawford was born in Hawkins County, near Rogersville, Tenn., June 2, 1848. He was the youngest child of Rev. Jas. Y. Crawford, of the Holston Conference, M. E. Church South.

Owing to war between the States he had no school advantages after twelve years of age until he attended the Medical Department of the University of Tennessee, 1879-'80-'81, at which time he received the degree of M. D., having been given the honorary D. D. S. degree at the first annual commencement of the University of Tennessee.

It is characteristic of him that "he has always supported association work." His membership in societies is as follows: Tennessee State Dental Society, American Dental Association, Southern Dental Association, Tennessee State Medical Society, Nashville Academy of Medicine and Surgery. He was a member of the organizing committees of two dental congresses held in this country, the First and Fourth International Dental Congress. He was chairman of the Committee on resolutions of the Fourth International Dental Congress, held at St. Louis in 1904, and Honorary President of the Jamestown Dental Convention. He was a member of the Tennessee State Board of Dental Examiners: is professor of Dental and Oral Surgery at the Medical Department of the University of Tennessee: dean of the University of Tennessee Dental Department, 1883-'89; professor of Theory and Practice of Dentistry in same; professor of Clinical Dentistry and Oral Surgery in Vanderbilt University, 1890-'91. He was twice elected president of the American Dental Association (1894-'95). He presided over the Horace Wells memorial meeting, held at Philadelphia in 1895: was president of the Southern Dental Association in 1889. At present he is the president of the faculty of the University of Tennessee Dental Department and professor of Clinical Dentistry. He has been elected honorary member of practically all Southern state dental societies. The most recent compliment is his registration with the Alabama State Dental Society at its last meeting in the city of Birmingham to practice dentistry in the State of Alabama. He was one of the first movers



J. G. Crawford

in the establishment of dental surgeons in the United States Army and Navy.

Dr. Crawford practiced for a time at Bowling Green, Ky., under Dr. J. E. Breeding. His first formal location was at McKinzie, Tenn. He afterwards (1899) moved to Nashville, Tenn., where he has since practiced.

Dr. Crawford has always maintained that dental surgery is a *bona fide* department of medicine and surgery and should be practiced as such, believing that, of all specialties of medicine, the dental surgeon needs fundamental education in medicine more than any other special practitioner.

He has been an inspiration to many young men and has done much both financially and by advice to aid them to acquire a dental education and to become identified with dental society work, in which he is probably the greatest exponent in the Southern states.

VINES EDMUND TURNER, D. D. S.

A PIONEER OF NORTH CAROLINA. PRESIDENT OF THE JAMESTOWN DENTAL CONVENTION. PRESIDENT OF THE NATIONAL DENTAL ASSOCIATION 1908-9.

Dr. Turner was born in Franklin County, N. C., January 21, 1837. He graduated as D. D. S. at the Baltimore College of Dental Surgery in March, 1858. In March, 1908, the profession of Raleigh and North Carolina tendered Dr. Turner a banquet in honor of his 50th anniversary of dental practice. He went into the Confederate Army June 11, 1861, as second lieutenant of infantry; was promoted to adjutant in 1862, to captain in 1863, and was serving on the staff of Major-General Jas. A. Walker at the surrender of General Lee at Appomattox. He was wounded in the battles around Richmond in 1863.

Dr. Turner is a charter member and was twice president of the North Carolina Dental Society. For twenty-one years he has been president of the North Carolina Board of Dental Examiners. He was president of the Southern Dental Association in 1881. He served as president of the National Association of Dental Examiners, 1901. He was one of the vice-presidents in the dental section of the Ninth International Medical Congress. He was state chairman and member of the Reception Committee of the Columbian Dental Congress at Chicago and was a member of the Committee on Organization of the Fourth International Dental Congress. He is a member of the National Dental Association and was treasurer of same in 1904-'95-'96, and elected to the presidency at Boston, 1908, and is a member of the Southern branch of the National Dental Association. He was president and director of the Raleigh Street Railway Co., and director in the North Carolina Railroad Co. for eight years; is now, and has been for twenty years, director of the Raleigh Savings Bank.

Dr. Turner was married in September, 1868, to Miss Rozena Lassiter, who died in May, 1869. In 1874 he was married to Miss Love Gales Root. He has three children, Chas. R. Turner, A. B., D. D. S., M. D., member University of Pennsylvania, Dental Department faculty; Mrs. H. M. Wilson, of Georgia, and H. G. Turner, A. B., M. D., of Raleigh, N. C.



W. G. Sumner

B. HOLLY SMITH, M. D., D. D. S.

DENTAL SOCIETY DEVOTEE.

Dr. Smith was born at Piscataway, Prince George County, Md., March 17, 1858. His father was the Rev. Bennett H. Smith, a Methodist clergyman, originally of Mecklenburg County, Va. His mother was Miss Mathilda C. Janney, of London County, Va. Dr. Smith's early life was spent in sections of Maryland, Virginia and West Virginia, where there were no school advantages, and he had no schooling, but was tutored by his parents.

He graduated from the Baltimore College of Dental Surgery in 1881 as D. D. S., and was appointed assistant demonstrator for the succeeding session. He graduated in medicine, in 1882, at the College of Physicians and Surgeons, Baltimore; served in the Baltimore College of Dental Surgery as demonstrator of Anatomy and Materia Medica, and upon the death of Prof. Winder succeeded to his chair, that of Operative Dentistry and Oral Surgery.

Dr. Smith was the valedictorian of his class, and the year of his graduation was selected to deliver the address of welcome to the Southern Dental Association, which met in Baltimore that year.

Dr. Smith has served as president of the Maryland State Dental Association; of the Southern Dental Association (1893); of the National Dental Association (1900), and of the National Association of Dental Faculties.

He was, until lately, professor of Dental Surgery as applied to Medicine, College of Physicians and Surgeons; is honorary professor of Dental Surgery, Georgetown University; honorary member of the Pennsylvania State Dental Association, the Texas State Dental Association, Georgia State Dental Association, North Carolina State Dental Association, District of Columbia Dental Association, the New Jersey State Dental Association. He is associate member of the Boston Academy of Stomatology, of the New York Odontological and Stomatological Societies, and is honorary member of the American Dental Society in Europe. He was a delegate to the *Federation Dentaire Internationale*; delegate to the International Dental Congress in Stockholm, 1894; was a member of the American Committee on Organization of the Medical Congress of Paris, 1895; was chairman of the Reception Committee and vice-



B. S. Lolly Smith

president of the Fourth International Dental Congress, and vice-president of the Lewis and Clark Dental Congress; and first Vice-President of the Jamestown Dental Convention, is a member of the Executive Council National Dental Association; of the Executive Committee of the Southern Branch of the National Dental Association; is secretary of the Executive Committee of the National Association of Dental Faculties; is a member of the Baltimore Dental Club.

Dr. Smith is the author of numerous papers. Among these are the following: "Footsteps of a Profession," "Professional Journalism," "Professional Patients," "Operative Dentistry," "Orthodontia," "Orthodontia for the Adult," "Specialization," "Attachment for Removable Bridgework," "Electricism in Dentistry," "Recreation of the Dentist," "Local Anæsthesia," "Effect of Arsenious Acid on the Dental Pulp," "Gold as a Filling Material," "Some Anæsthetic Considerations in Dental Practice."

Probably the greatest service rendered to dentistry by Dr. Smith was the assistance which he gave to the organization of the National Dental Association. The bringing together of the American and Southern Dental Associations was urged by him in his presidential address before the latter organization, and a committee was appointed at that meeting to confer with a similar committee from the American Dental Association. With others he labored unceasingly to break down the opposition which threatened to prevent the organization of the National.

Dr. Smith was married June 6, 1883, to Miss Francis Gist Hopkins, and has a family of four boys.

Talented as an elocutionist and after-dinner speaker he is always in demand at dental dinners, smokers, banquets, etc.

GEORGE FISKE KEESEE, D. D. S.

A PIONEER OF VIRGINIA.

Dr. Keesee was born in Richmond, Virginia, September, 1842. His boyhood was passed amid surroundings calculated to instil into his youthful mind those qualities of the heart most admired by humanity, and to so mold his character that in after years his fellowmen have naught but love and admiration for his many virtues. He received his education at home and in the common schools of his native city.

On the secession of Virginia from the Union he volunteered his services to the Confederacy. In May, 1861, he entered the army and saw about thirteen months' active service, after which he was detailed in the quartermaster's department at Richmond, where he remained until the close of the war, performing all services assigned to him with that faithful attention to duty which has always been one of his noble characteristics.

In 1867 he determined to study dentistry, and in the fall of that year entered the Baltimore College of Dental Surgery. His graduation, with the degree of D. D. S., took place in 1869. He immediately returned to his native city and began the practice of his chosen profession. His career thus begun has been eminently successful, both personally and professionally. By his strict attention to his business, by his faithful and conscientious work, by his evident genuine love for his chosen study, he soon gained recognition among his fellow-practitioners and built up a large practice.

From the very beginning of his career he felt an interest in the various dental associations, taking an active and leading part in the Virginia State Dental Association. At its organization, in 1870, that body elected him as its secretary, which office he has held to this day, a continuous service of thirty-seven years, during which time he has never missed a meeting. He has served the association as its president, and during that year he held both offices and performed the duties of both president and secretary. In recognition of his long and faithful service, and as a token of their affection, the association, at its annual meeting in August, 1905, presented him with a loving cup, appropriately inscribed. This cup is now one of his most cherished possessions.



Geo. F. Keene

He served three terms as president of the Richmond City Dental Society, having taken an active part in its affairs since its organization. He was the unanimous choice of the Committee on Organization of the Jamestown Dental Convention for Secretary-General and faithfully performed this service.

Affable and gentle in his manners, Dr. Keesee commands the love and respect of all who come in contact with him. Though now somewhat advanced in years he is still hale and hearty, evincing that same enthusiasm for dentistry which characterized his younger days.

MARK F. FINLEY, D. D. S.

AN ENERGETIC AND DEVOTED DENTAL SOCIETY EXPONENT.

Dr. Finley was born on a farm in Washtenaw County, Michigan. He attended district school and the Ypsilanti high school. He graduated from the Michigan State Normal School (classical course) with the class of 1875. He located at Ypsilanti, Michigan, and graduated from the University of Michigan, College of Dental Surgery, at Ann Arbor, Michigan, in 1878. He was president of the National Dental Association in 1906; was a member of the Committee on Organization, and treasurer of the Fourth International Dental Congress, held in 1904; treasurer of the Jamestown Dental Convention 1907. He is a member of the Southern Branch of the N. D. A.; is treasurer and ex-president of the District of Columbia Dental Society; ex-secretary of the Michigan State Dental Association; ex-president of the Board of Dental Examiners of the District of Columbia; is ex-member of the National Association of Dental Examiners; a member of the New York Odontological Society; member and ex-president of the Washington Dental Club. (Moved to Washington, D. C., in 1881.) For years Dr. Finley has assiduously been identified in dental society work and faithfully served on the Executive and other Committees of the National Dental Association. Original paper presented through Section I, N. D. A., 1897, entitled "Opening the Bite with Cap Fillings without Destroying the Vitality of the Pulps of the Teeth."



Mr. F. Finley

JOHN DEANS PATTERSON, D. D. S.

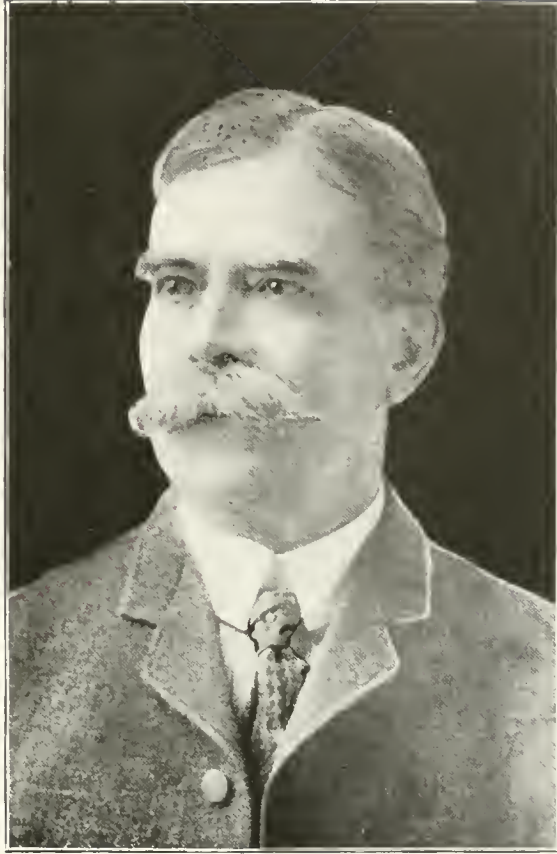
A PROGRESSIVE WESTERN DENTIST.

February 9, 1848, in Clear Creek Township, Ashland County, near Savannah, Ohio, a son was born to John and Christina Patterson, sturdy Scotch farmer folks, both living (1907) and proud of their son, who was christened John Deans Patterson.

Young Patterson passed much of his boyhood working on his father's farm and absorbed the lessons of nature, country life and self-dependence, so essential to a successful career. He received his early education at the district school and later at the Savannah Academy. This education was supplemented by the great fund of learning possessed by his parents. His early life was spent on the farm; then followed two years at carpentering, which further developed him for his future work. He commenced the study of dentistry in the office of Dr. R. Newton, at Savannah, Ohio, where he spent one year. He then went into the office of Dr. Moses De Camp, of Mansfield, Ohio, where he studied and worked two years, that being the prescribed term of pupilage for the dental student of those days.

After leaving Dr. De Camp, he practiced for a short time at Savannah, and in 1868 removed to Lawrence, Kansas, where he soon took front rank as a practitioner and a citizen, prominently identified with church and social affairs. At this period dentistry was in a chaotic condition in Kansas, without organization, and feeling the need of professional unity. Dr. Patterson, in conjunction with Drs. J. B. Wheeler, of Lawrence; W. H. Marvin, of Topeka; E. F. Fuller, of Fort Scott; J. H. Sawyer, of Atchison; A. M. Callahan and L. C. Wasson, of Topeka, met at Lawrence, May 8, 1872, and organized The Kansas State Dental Association. Dr. Patterson was the first Secretary, an office he held until 1876, when he was elected President, holding that office until 1878. Drs. L. C. Wasson and Patterson are the only surviving charter members of the Association.

He was one of the organizers and the first professor of Operative Dentistry of the Kansas City Dental College in 1881, and was graduated from that institution in 1883. For years he was secretary of the faculty and pro-



John Deans Patterson

fessor of Dental Pathology, the chair he still occupies. For the past eight years he has been dean of the faculty.

In 1884 he removed to Kansas City and actively engaged in practice and college work. Soon after this "The Western Dental Journal" was organized with Dr. Patterson as editor-in-chief, a position he occupied until January, 1906.

For years, Dr. Patterson has been prominently identified with all the best interests in dentistry, and has received all the honors the profession has had to give in recognition of his high standing and assiduous work for its interests. He was president of the Kansas State Dental Association, 1876-7, president of the Missouri State Dental Association in 1892, president of the American Dental Association in 1893, president of the National Association of Dental Faculties 1894, president of the Institute of Dental Pedagogies in 1903, president of the Kansas City Odontographics in 1902. This society gave a banquet to Dr. Patterson February, 1907, and presented him with a loving cup as a testimonial of their affection for him. He was honorary president of the Kansas City Dental College Alumni Association in 1904-5, vice-president for Missouri of the Interstate Dental Fraternity in 1905, and Supreme Grand Master of the Delta Sigma Delta Fraternity 1905-6. Besides holding prominent offices and being an active worker in the National Dental Association, he is an honorary member of the American Academy of Dental Science of Boston, the St. Louis Society of Dental Science, the Nebraska, Oklahoma, Southern Kansas, Indiana and other State Dental Associations. He was a member of the Committee on Organization of The Fourth International Dental Congress.

Dr. Patterson is one of the best parliamentarians and executive officers in the profession and is frequently called upon for opinions or to preside at meetings. Of commanding presence, his clear, emphatic manner of speaking always receives the attention of his audience. As an essayist and writer he is equally talented, and he has contributed much of value to the literature of the profession. As an essayist, to open discussions and as a banquet orator he is in demand.

Dr. Patterson is a natural surgeon, and has devoted much of his time to oral surgery and the successful treatment of pyorrhea and other diseases of the teeth and mouth.

Dr. Patterson was married May 18, 1866, to Miss Caroline Haines Cooper, of Philadelphia, whose death occurred in 1904.

As to the personal side of Dr. Patterson's career: He is fond of music and

has an excellent baritone voice, which he has exercised at social gatherings and in church choirs. In days past he has taken an active part in amateur operatic affairs, and has frequently taken leading roles. The writer once saw him appear as the chief pirate in the "Pirates of Penzance." Dr. Patterson looked the part and sang it well. In his early professional career, Dr. Patterson was an ardent devotee of archery, and attended many tournaments, at which he frequently took prizes for his skill. With gun and rod he has more than ordinary skill. Chess is his favorite game, and the principal recreation of his busy life.

With a determination and a sense of justice characteristic of his Scotch ancestry, Dr. Patterson never hesitates to express his opinion and is always found on the side of what he believes the right, no matter what the result may be. Another characteristic is his willingness to give everyone a "square deal," and, other things being equal, his influence is invariably with the "under dog." He is the man who compares favorably with Kipling's ideal, who dares

"Greet the embarrassed Gods,
Nor fears to shake the iron hand of Fate,
Nor Match with Destiny for beers."

HARVEY J. BURKHART, D. D. S.

ORGANIZER, EXECUTIVE, AND PARLIAMENTARIAN.

The subject of this sketch was born August 14, 1864, at Cleveland, Ohio. He is the son of Jacob and Biena Buckholtz Burkhart. His father was a cooper.

Young Harvey obtained his early education at the Cleveland public schools and the Dansville Seminary at Dansville, New York, at which place he eventually studied dentistry with his brother Dr. A. P. Burkhart and later at the Baltimore College of Dental Surgery from which he graduated as D. D. S. 1890, and located at Batavia, N. Y., where he continues to practice.

From the period of his entrance into the profession to the present day, Dr. Burkhart has been a most active and enthusiastic dental society worker, and has contributed both in papers and clinics to the societies he is affiliated with.

In him his professional associates soon discovered both an executive and parliamentarian of marked ability, which soon and naturally resulted in the preferment of many honors upon him, all of which he has ably filled with marked executive ability.

He was President of the Eighth District Dental Society of New York. President of the Dental Society of the State of New York. President of the National Dental Association, 1899.

Dr. Burkhart was one of the first and most enthusiastic members of the N. D. A. who favored and made possible the organization of the Fourth International Dental Congress held at St. Louis, 1904. He was appointed a member of the Committee on Organization, elected its chairman, and in consideration of his hard work to make it a success, and his executive ability was elected the president of the Congress at the opening session, August 29, 1904.

For the past eight years he has proficiently served the N. D. A., as chairman of the Executive Council, a position he is well fitted for. For the past ten years he has been a member of The New York State Board of Dental Examiners.

Outside of dentistry, in secret societies, and in Republican politics, Dr. Burkhart has taken a prominent part. He was mayor of Batavia for four



H. J. Burkhardt

terms and for many years has been a member and president of the Batavia Board of Education, President of the Board of Trade and Business Men's Association, and connected with banks and various business enterprises as Director, as well as active in all branches of Masonry, Oddfellowship and the order of Maccabees, of which he has passed through the principle chairs in each. In religion he is identified with the Episcopal church and a member of the vestry. Athletic sports, art and music are his pastimes and hobbies. Dr. Burkhart was married November 6, 1890 to Miss Jane Hingston of Buffalo. One son, Richard H., is the result of their union.

The writer has always contended that the organizer and parliamentarian, he who devotes hours of work to the details and management of a dental society, was as essential to the success of the society and to professional advancement as was the scientist, essayist or clinician. Few if any in the dental profession possess the marked executive ability in the promotion of dental society work, as does the subject of this sketch.

EDWIN TYLER DARBY, M. D., D. D. S.

TEACHER AND WRITER.

Edwin T. Darby was born in Binghamton, Broome county, New York, August 21, 1845. He was the son of Rev. Chauncey Darby, a Baptist clergyman of English descent. Dr. Darby was educated at the Cortland Academy of Homer, New York, and began the study of dentistry in 1862, when sixteen years of age, with Dr. Ransom Walker, a dentist of Owego, Tioga county, New York. He remained one year with his preceptor, and then at the age of seventeen, began the practice of his profession at Marion, Wayne county, New York.

In the autumn of 1864 he entered the Pennsylvania College of Dental Surgery in Philadelphia, from which he was graduated the following March, receiving the degree of Doctor of Dental Surgery.

In the autumn of 1865 he was elected Demonstrator of Operative Dentistry in his alma mater, removed permanently to Philadelphia, and engaged in the active practice of his profession. Dr. Darby's practice grew so rapidly and he had confined himself so closely to it, that in five years from the time he came to Philadelphia his health was impaired to an extent which demanded a total relinquishment of all work for a period.

Accordingly, in the autumn of 1870, he visited Europe, traveled extensively on the Continent, and spent the following winter in Egypt and the Holy Land. In the summer of 1871 he returned to America restored in health and resumed his professional work, his practice consisting of a large and select clientele.

In 1876 Dr. Darby was elected Professor of Operative Dentistry, Dental Histology and Pathology in the Pennsylvania College of Dental Surgery, and held the position until the establishment of the Dental Department in the University of Pennsylvania in 1878, when he resigned to accept the professorship of Operative Dentistry and Dental Histology in that institution, the chair which he now holds.

The same year the degree of M. D. was conferred upon him by the University of Pennsylvania. When the Board of Trustees of the University decided to establish a Dental Department Dr. Chas. J. Essig and Dr. Darby



Edwin C. Darby

were selected to undertake the work of organization, and were prominent factors in the steering of the department's affairs during its infancy, and to them and other men of the type of J. T. Tyson M. D., William Pepper, M. D., and Chas. J. Stille, LL. D., much credit is due for their unceasing efforts in endeavoring to place it on a sound and solid basis.

The first faculty organization was effected on March 15, 1878, the personnel of which follows:

Chas. J. Stille, LL. D., Provost of the University and ex-officio President of the faculty; Chas. J. Essig, M. D., D. D. S., Professor of Mechanical Dentistry and Metallurgy and Secretary of the Faculty; Edwin T. Darby, M. D., D. D. S., professor of Operative Dentistry. Dental Histology and Dental Pathology; Joseph Leidy, M. D., LL. D., Professor of Anatomy; Horatio C. Wood, M. D., LL. D., Professor of Materia Medica, Pharmacy and General Therapeutics; Joseph Tyson, M. D., Professor of Physiology; Theodore G. Wormley, M. D., LL. D., Professor of Chemistry.

Drs. Essig and Darby were detailed to look after the provision of equipment, and everything being in readiness, the first official session began in October, 1878; however, a number of students who had previously matriculated began work on Monday, April 18, 1878.

Dr. Darby was a member of the old American Dental Association, the predecessor to the present National Dental Association, and was elected its President in 1883. He is a member of the Pennsylvania State Dental Society, and was its President in 1875. He served for eight years as one of the Board of Examiners of the Pennsylvania State Dental Society after the passage of the dental law.

He is a member of the New York Odontological Society, the first District Dental Society of the State of New York, the Central Dental Association of New Jersey, and the Academy of Stomatology of Philadelphia.

He has been a frequent contributor to the literature of his profession. He has written upon many subjects during the last forty years, and has covered nearly the whole range of dental practice, treating each subject with precision and authority. Among his writings are the following contributions:

- 1906. Alloys: Penn. State Den. Soc.; "Cosmos," Vol. XLVIII, p. 46.
- 1905. "A Field for Women in Dental Practice;" "Cosmos," Vol. XLVII, p. 1063.
- 1905. Cements: Fourth International Dental Congress; "Cosmos," Vol. XLVII, p. 830.
- 1904. The Patient's Part in Keeping the Mouth Clean: Den. Soc. of State of N. Y.; "Cosmos," Vol. XLVI, p. 874.

1904. The Injection of Approximo-Occlusal Gold Fillings in Bicuspids and Molars: New York Odontolog. Soc.; "Cosmos," Vol. XLVI, p. 289.
1899. Tin Fillings Made by Freshmen Students: N. Y. Odontolog. Soc.; "Cosmos," Vol. XLI, p. 46.
1898. Tin Fillings: N. Y. Odontolog. Soc., Jan. 18, 1898; "Cosmos," Vol. XL, p. 358, May, 1898; "Disc. Cosmos," Vol. XL, pp. 358, 360, May, 1898.
1898. Dr. Jenkin's System of Porcelain Inlays: N. Y. Odontolog. Soc., Jan. 18, 1898; "Cosmos," Vol. XL, pp. 360-363, May, 1898; "Disc. Cosmos," Vol. XL, pp. 363-366, May, 1898.
1895. Gouty Pericementitis: Acad. of Stomatology; "Cosmos," Vol. XXXVII, pp. 318-328.
1894. The Relative Merits of Filling Materials: Second Dist. Den. Soc. N. Y.; "Cosmos," Vol. XXXVI, pp. 175-181; "Disc. Cosmos," Vol. XXXVI, pp. 220-227.
1894. Heating Non-Cohesive Gold; "Cosmos," Vol. XXXVI, p. 501. Hints.
1892. Dental Erosion and the Gouty Diathesis: Are They Unusually Associated? Den. Soc. State of N. Y.; "Cosmos," Vol. XXXIV, pp. 629-640 (7 Illus.); "Disc. Cosmos," Vol. XXXIV, pp. 732-740.
1888. Operative Dentistry: Report of Com. (Treatment of Pulpless Teeth. Implantation); Union, Amer. & Southern Den. Assn.; "Cosmos," Vol. XXX, pp. 745-746.
1887. Operative Dentistry: Report of Com.: Amer. Den. Assn.; "Cosmos," Vol. XXIX, pp. 644-645.
1886. Operative Dentistry, Report of Com.: Amer. Den. Assn.; "Cosmos," Vol. XXVIII, pp. 607-608; "Disc. Cosmos," Vol. XXVIII, p. 608.
1885. Separators and Matrices: Amer. Den. Assn.; "Cosmos," Vol. XXVII, p. 603.
1884. Operative Dentistry, Report of Com.: Amer. Den. Assn.; "Cosmos," Vol. XXVI, p. 683.
1884. President's Address: Amer. Den. Assn.; "Cosmos," Vol. XXVI, pp. 513-515. Report of Com. on Same; "Cosmos," Vol. XXVI, p. 681.
1884. The Etiology of Caries at the Gum Margins and the Labial and Buccal Surfaces of the Teeth (Also Erosion): Odontolog. Soc. Penn.; "Cosmos," Vol. XXVI, pp. 218-225; "Disc. Cosmos," Vol. XXVI, pp. 225-232.
1883. Treatment of Children's Teeth; N. Y. Odontolog. Soc.; "Cosmos," Vol. XXV, pp. 651-657; "Disc. Cosmos," Vol. XXV, pp. 657-665.
1881. Man Who Has Erupted But Two Teeth: Odontolog. Soc. Penn.; "Cosmos," Vol. XXIII, pp. 645-646.
1875. The Electro-Magnetic Mallet: Penn. S. Den. Soc.; "Cosmos," Vol. XVII, pp. 626-632.

Considering the time and strength required by his practice, and the effort necessary in the preparation and delivery of his lectures before the University, the wonder is that he could find the time to contribute so much to dental literature.

He is an accomplished microscopist, having given, in the early years, a great deal of attention to that fascinating science, and having an elaborate and perfect equipment for that work.

In his practice he has been an eclectic, giving attention to all its different branches. Always having a well-equipped laboratory and workmen of the highest skill, he has given successful attention to orthodontia and prosthesis.

He has always been an active worker in dental societies. An accomplished writer and fluent speaker, he has always been in demand, and distance or discomfort of traveling has seldom kept him from complying with the requests of the leading societies of the country. Dr. Safford G. Perry, a close friend and admirer of Dr. Darby, says of him:

"Absorbed as he must naturally be in the interests of a great city, he is at the same time a great lover of the country. In 1887 he moved out to Lansdowne, where he made a permanent winter home. With good business foresight he bought land there which has since proven a good investment. In addition to this he has a summer home, which after all is his dearest love. The light that comes into his face when speaking of it is something to remember. Facing the morning sun it stands on the shore of the beautiful Skaneateles Lake, in western New York. There he spends his vacations, contented and happy, and wishing it could be always summer. Terraced above his cottage, on the hillside, are his orchards, young and old, where he takes pride in growing fruits of the finest varieties. At his feet lies a lake as beautiful as the eye ever rested on, and across its placid bosom rise shores ever green and restful, making a combination well suited to bring rest and contentment during the precious summer vacation.

"Wise in his day and generation, he looks forward to the day when he can no longer work, and has bought a place in Florida where the genial air of the Northern summer will be continued during the Southern winter. May there come to him there under beautiful skies and amid luscious fruits the satisfaction of contemplating a long life well spent.

"His recreations at his summer home at Glen Haven are not of a strenuous kind. Not having for many years the robust health that finds delight in active outdoor sports, his greatest pleasure is in reading, rowing, walking, driving and tinkering in his shop. Having a mechanical turn of mind, and being a great lover of fine tools, his work-shop has always been a great source of delight. He does not often make an ambitious or elaborate attempt at construction, but he likes to have a work-shop so well equipped that almost anything can be made in it at short notice.

"His mechanical turn of mind is shown in the dental instruments of his design, many of which are used by the profession throughout the world. His bump of order is enormously developed. One never sees signs of confusion in the instruments of his office, the tools of his workshop, the papers on his desk, the contents of his den at his home, or in the care and arrangement of his clothing. In matters of dress he is immaculate. No one ever saw him wear an ill-fitting garment. Even during vacation, which is conceded to be the time for wearing out old-clothes, he is always immaculately dressed. He could not be happy if not tidy.

"His habit of neatness and order has been of great service to him in his professional work. It has made him prompt, exact and rapid. In his work he never hesitates or makes false motions. His instruments are always so arranged that any one of them can be found, almost in the dark, and they are always sharp and ready for use.

"As a companion, he is as lovable as a woman. The sweetness of his smile is proverbial and perennial. It wins to him men, women and children in all walks of life. Wherever he is known there will be found a host of his friends. This is particularly true in his profession, wherein he is beloved. He is always the friend of the young struggling student, and is ready with advice and sometimes with money, to help him on. He seems never to forget that he was once a student himself craving knowledge at every turn.

"As a genial companion he has no superior in the dental profession. A droll, keen sense of humor makes him always entertaining, and his warm heart makes him always sympathetic. His stories are always gems, and they are always told in a manner to make one love the story-teller better than the story. His own appreciation of funny things is so great that often, unconsciously, he will tell a story over twice, and with even more enjoyment the second time. This appreciation of droll things, which he shares with his brother, Dr. Charles Darby, of St. Joseph, Mo., is an inheritance from a grandmother, who was a great wit.

"As an after-dinner speaker he is conspicuous as always saying just the right thing in the right place. Besides having good sense he has unfailing good taste. This enables him to fill the position of toastmaster always with great distinction.

"As a traveling companion he is ideal. Always modest and unassuming, he is at home under all conditions, and a man to be proud of when presented to one's choicest friends. His sweetness of temper makes him always agreeable, and no matter how the ship plunges or how long the train delays he is always

the philosopher who does not complain. As a traveler he has had large experience. Our own country is familiar to him from Maine to Florida, and from the Atlantic to the Rocky Mountains. He has ransacked Europe, having been abroad many times. In 1871, in company with Rev. Dr. George Dana Boardman, he ascended the Nile, crossed the desert, and visited the Holy Land. In the mummy pits of Egypt, with his own hands, he uncovered a great number of mummies in search of evidence of early dentistry—which he never found."

Dr. Darby was married in 1866 to Miss Carolyn B. Thomas. To them was born one son, George D. B. Darby, D. D. S., who practices in Philadelphia, and three daughters.

Generous in his family, indulgent to his children, liberal among his friends, yet with good business judgment and thrift, partly imbibed perhaps from his Quaker friends, having made him comfortably well off, so far as this world's good are concerned. "Rich was he in all that makes true wealth—the respect of his neighbors and the affection of his friends!"

He is a member of the Union League Club, University Club, Bachelors' Barge Club and the Philadelphia Dental Club. Although always warmly welcomed by his friends in all his clubs, yet he uses them but little, being a great lover of his own home. Besides being a close reader of the literature of his profession he is a great lover of good books, and finds time to keep abreast of the general literature of the day. He is a member of the Baptist Church and was the life-long and very intimate friend of the late distinguished Rev. Dr. George Dana Boardman, after whom his son is named.

He is notably loyal to his friends, peculiarly courteous and considerate to his acquaintances, but always fearless and outspoken in condemnation of those whom he cannot respect. Yet there is so much charity in his nature, that condemnation is seldom heard from his lips.

As a final and fitting evidence of the position he holds in his profession, he received in 1906 from the Dental Society of the State of New York, its gold medal, bestowed in recognition of "distinguished service tendered the science and art of dentistry."

The principal facts in this biography were gleaned from a sketch by Dr. S. G. Perry in "The Dental Record," class 1906, Department of Dentistry, University of Pennsylvania.

WALDO ELIAS BOARDMAN, D. M. D.

DENTAL SOCIETY ENTHUSIAST AND ORGANIZER.

Waldo Elias Boardman, son of Elias and Sarah Hartshorn (Hopkins) Boardman, was born in Saco, Maine, September 1, 1851, and educated in the public schools of his native city and the Bryant and Stratton Business College, at Portland, Maine.

He descended originally from William Bordman of Cambridge, England, who settled in Cambridge, Mass., (in New England) with his mother and stepfather Stephen Day, (her second husband) who was the first Cambridge printer. William was probably born in 1614, was freeman in Cambridge, Mass., in 1652, and came from London, England, in the ship John, in 1638. William's father was Andrew Bordman of Cambridge, England, William died March 25, 1685, aged 71 years. He was a tailor, steward and cook of Harvard College. He left eight children, five sons and three daughters, a son Andrew succeeded his father as college cook and managed the office of steward. Another son succeeded as college cook and steward, thus this position remained in the family 100 years.

A nephew, Andrew, also succeeded to said office in 1703, and held it for 44 years. He was town clerk of Cambridge, Mass., for 31 successive years, town treasurer for 46 successive years, from 1701. Selectman for 18 years, between 1706 and 1732, representative 1719 and 1720, and died May 30, 1747, aged 76 years.

On his mother's side he descended from Captain Jonathan Poole, the noted Indian fighter, who was appointed Oct. 1671, quartermaster, and in May, 1674, cornet of the "three county troop" and held that office when the war broke out in 1675.

The monument of Capt. John Parker in Lexington (Mass.) Common is commemorative of another ancestor on his mother's side of the family.

Young Waldo first engaged in the boot and shoe business with his father in his native city in 1869.

In 1871 he came to Boston to engage in a professional line, that of patent solicitor and counsel in patent causes in which he remained for nearly seven



Haldo E. Boardman

years, when his health gave way owing to overwork. After four year's rest he entered the newspaper business in which he was a partner, in New York City, in the publication of a weekly trade journal devoted to the cotton belt. Relinquishing his interest after more than a year's experience, he entered the drug business and later entered the confectionary business in which he continued for two years, after which, in 1883, he entered the Harvard Dental School, and after the three year's course graduated with the degree of D. M. D. June 29, 1886.

It is of more than passing interest to note his capacity for faithful work and what he has contributed toward dental society organization. He began the practice of dentistry in 1886; was instructor in operative dentistry, Dental Department of Harvard University, 1890-1900, inclusive. Curator, of the dental museum, Dental Department, Harvard University, 1891, and still holds the office. Librarian of the dental library, Dental Department of Harvard University, 1897, and still holds the office. Editor of Quinquesimal Catalogue, Dental Department of Harvard University, 1896, and still holds the office. Member of the Administrative Board of the Dental Department of Harvard University, 1899, and still holds the office. He was elected active member of Massachusetts Dental Society, 1887. Elected member of Executive Committee 1889 to 1894, inclusive; and its secretary each year; second vice-president 1894; first vice-president 1895; president 1896; member of the Executive Committee from 1897 to the present time; chairman of the Executive Committee 1900-1901, 1905-08. He was councillor 1895 and 1896; counsellor, ex-officio, 1905-1908 and editor, 1898-1904.

He was temporary president of the Metropolitan District Dental Society at its organization, 1895, and elected treasurer of the same society, April, 1896, and still holds that office. In 1895 he organized the South Metropolitan District Dental Society; also the North Metropolitan, the North Eastern, Central and South Eastern Metropolitan District Dental Societies.

In 1886 he became a member of the Harvard Dental Alumni Association; in 1894 he became a member of the executive committee, and in 1895 was elected secretary and chairman of the executive committee, and still holds the office.

He was elected an active member of the Harvard Odontological Society in 1887, and was recording secretary 1891 to 1896, inclusive; elected president, 1896-1897 (two years). Elected an active member, 1897, of the Northeastern Dental Association, member of executive committee and chairman 1898-1899; president 1899-1900; member of the executive committee and chairman 1901-

1902 and 1902-1903. Elected member, 1899, of the Academy of Dental Science. Elected member (associate), 1905, of The New York Institute of Stomatology. Member of committee on organization of fifteen of the Fourth International Dental Congress; chairman of the Publication of Proceedings Committee; member of the Committee on Nomination of Offices; member of the Finance Committee. Elected active member, August, 1899, of the National Dental Association; member of Necrology Committee; member of the Executive Council (elected 1902); vice-president for the East (elected 1903), and president (elected September, 1904), and is a member of the *Federation Dentaire Internationale*. Besides his many dental society duties, Dr. Boardman was also a member of the Boston Art Club; life member Sons of the American Revolution; member of Boston Chapter, Sons of the American Revolution; life member of the Massachusetts Charitable Mechanic Association; life member of the Boston Young Men's Christian Union, and other kindred societies.

Delegate from State Society Sons of the American Revolution to National Society at meeting in Denver, Colo., June, 1907.

A member of the Boston City Club and vice-president of the Winthrop (Mass.) town government association.

His hobby in early life was the subject of Lepidoptera (insects, beetles, etc) of which he has a fair collection which he has preserved for more than forty years.

Dr. Boardman was appointed a justice of the peace for Massachusetts in 1874 by Lieutenant-Governor Thomas Talbot, and, reappointed every seven years since by governors of Massachusetts, is still holding the appointment. He was appointed by Governor Alexander H. Rice, in 1876, a notary public for Massachusetts, and still holds the office, having been re-appointed every seven years since by the governors.

Dr. Boardman has been a frequent contributor to our periodical literature and has read a number of papers before the Massachusetts Dental Society, Harvard Odontological Society, the American Academy of Dental Science, and F. D. I. He has made three visits to Europe—1886, 1889, 1890.

GEORGE LINDSEY FIELD, D. D. S.

A MICHIGAN PIONEER DENTIST.

The former patients and professional friends of the well known Detroit practitioner, the subject of this sketch recently received the following announcement: "After a continuous practice of dentistry for over fifty-six years, over fifty of which have been in this city, I have decided to close my office and retire from practice permanently. This I hope to do on, or about, the first of September next. But before doing so, I wish to return my hearty thanks to those who have been my friends and patients in years now gone by, trusting they will overlook as much as possible such faults and failures as may have been mine, in the practice of a profession which in itself is not conducive to pleasant memories. I subscribe myself with kind wishes to all."

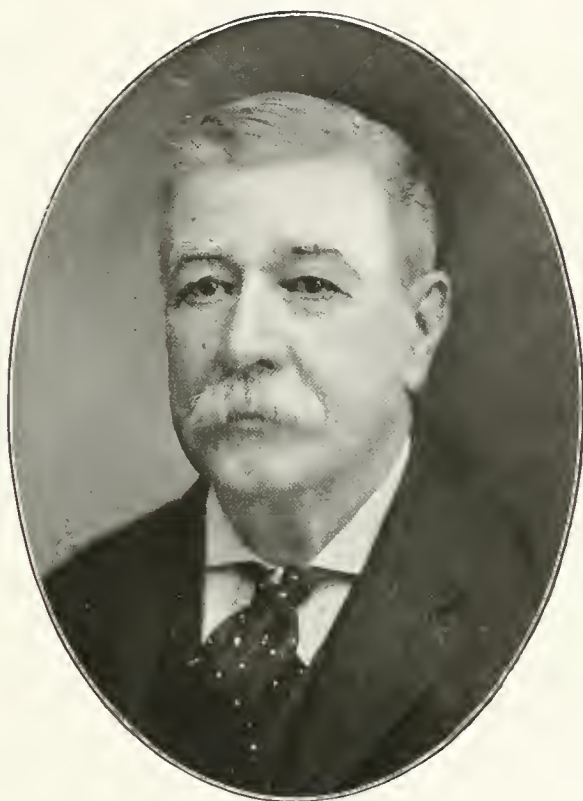
Very truly yours,

GEO. L. FIELD, D. D. S.

Detroit, Aug. 1st, 1907.

The continuous active practice in dentistry by any man, who has done his work well deserves more than passing comment. Dr. Field is one of the few who has withstood the arduous trials and just recently celebrated his 50th anniversary.

Dr. Field was born April 19, 1835. His parents were George and Sarah A. Field. His father was originally civil engineer, having served the apprenticeship for seven years in England. He afterwards became a clergyman. Two years after the birth of their son, they moved to Detroit, where young George attended the public school. Later they removed to Battle Creek, returning to Detroit in 1844, the year James K. Polk was elected President. In the Fall of 1850 the family removed to St. Louis, and in 1851 young George entered the office of Dr. C. W. Spalding as an *indentured apprentice*. Dr. Spalding was a well known and skillful practitioner, one of the foremost in St. Louis at that period. With him Dr. Field stayed three years, then becoming the assistant of the late Dr. Henry J. McKellops for whom he did the gold plate and general laboratory work. Next Dr. Field was employed by Dr. Solymán Dunham another well known St. Louis dentist. After this he located in the village



Dr. W. L. Field

of Huntsville, Mo. Here he remained three years conducting a country dental practice. In 1857 he returned to Detroit where he decided to permanently locate. Being out of funds, he borrowed \$60.00, rented a small back room, from Zacharia Chandler, who had just been elected for the first time to the United States Senate, Dr. Field paying \$96.00 yearly rent, and with a second hand easy chair, and an oil cloth covered table, he began a practice which he conducted for fifty years. His first year's gross income was \$150.00. He soon commanded a large and wealthy clientele, whom he served for three generations. His work was of a high class, and he is one of the few dentists throughout the country that made a practice of stating his fees on his appointment cards. Following is the schedule of fees that each patient was handed upon making an appointment.

DR. FIELD'S DENTAL FEE BILL.

Ordinary Gold Fillings.....	\$ 3.00 to \$ 8.00
Larger or more complicated.....	10.00 to 40.00
Destroying Pulp or Nerve.....	1.00 to 2.00
Treating Ulcerated Tooth.....	1.00 to 5.00
Cleaning Teeth	1.00 to 6.00
Inserting Pivot Tooth on Wooden Peg.....	5.00 to 8.00
Extracting Tooth50 to 2.00
Use of Chloroform or Ether.....	3.00 to 5.00
Use of Nitrous Oxide.....	2.00
Gold Crown, from.....	25.00 to 40.00

Terms for inserting teeth on Plate made known upon application. Those not wishing to conform to these charges will please make no appointment.

Dr. Field received the degree of D. D. S. from the Ohio College of Dental Surgery, Feb. 24, 1874. All of his professional career has been identified with the best interests to promote and better dentistry. Soon after locating at Detroit, he joined the Michigan State Dental Association, which honored him with the presidency three different times. He also has been thrice president of the Detroit Dental Society and for forty years a member of the American Dental Association (now the National Dental Association). In 1881 he was a delegate to the International Medical Congress at London, to which a section of Dental and Oral Surgery had been added. At this time he attended an annual meeting of the American Dental Society of Europe at Weis Baden, Germany, of which he is an honorary member. Fourteen years ago when the Detroit College of Medicine inaugurated a dental department, Dr. Field was chosen professor of clinical operative dentistry, a position he still holds. Dr. Field is a member of the Delta Sigma Delta Fraternity. He was

married Oct. 17, 1861, to Miss Sarah A. Folsom, a distant cousin to Mrs. Grover Cleveland. To them was born one child Jessie (now Mrs. John R. Campbell, of Chicago). October 26, 1907, some seventy-five members of the profession tendered Dr. Field a complimentary banquet at the Fellowcraft club, Detroit, at which time they presented him with a silver loving cup, in behalf of the Detroit Dental Society.

As before stated, Dr. Field is one of the few men who has successfully rounded out fifty years in the continuous practice of dentistry. Other close friends and associates, in the American Dental Association, of which he was at one time vice president, were: H. J. McKellops, of St. Louis; W. W. Allport of Chicago, John Allen of continuous gum fame; W. C. Barrett of Buffalo; and Chas. R. Bulter, of Cleveland. All gone to their reward but the latter. In the early days of his professional career, Dr. Field was an enthusiastic huntsman. Billiards and cards have been a favorite amusement with him. Dr. Field has been a famous story teller, and one of the interesting characters at the National Dental Association meeting, where he was always surrounded by a crowd of jolly fellows, listening and laughing to his witty and humorous stories.

With fifty years continuous and conscientious practice and the records of right living to his credit truly "Uncle George," as he is best known, has earned the rest that his retirement entitles him to, as well as the respect and good will of his fellow men. With his life of fun and natural wit, and with his skillfully trained hand he has gone through life carrying sunshine and laughter and relief to those with whom he has come in contact.

THOMAS FILLEBROWN, M. D., D. M. D.

ORAL SURGEON.

The death of Professor Fillebrown, which occurred Jan. 22nd, 1908, at the Boothby Hospital, Boston, removed one of the most prominent and best known New England dentists.

Thomas Fillebrown was born Jan. 13, 1836 at Winthrop, Maine. He was the son of Dr. James Bowdoin and Almira (Butler) Fillebrown. He received his early education in the public schools, the Towle Academy and Mount West-leyian Seminary, from which he graduated 1859. He began his career first as a teacher in the public school, later studying dentistry with his father, Dr. J. B. Fillebrown. He studied medicine at Bowdoin College in the Medical School of Maine, from which he received the M. D. degree in 1863. Desiring to further equip himself, he entered the first class of the dental department of Harvard University, and graduated from this department in 1869 as D. M. D. He practiced first at Lewiston and Portland, Me., and after his graduation in dentistry located in Boston where he became an instructor in the dental department of Harvard University. Later he was elected Professor of Operative Dentistry and Oral Surgery, a position he held for 21 years, resigning in 1904.

Dr. Fillebrown did considerable writing. His best known work was the Fillebrown "*Text-book on Operative Dentistry.*" He wrote many articles on this subject also for the dental journals and on Oral Surgery, hare-lip, cleft palate, the hypnosis as a dental obtundant, anesthesia, and lately several papers of the physiology of vocalism. He devised an ingenious apparatus for the maintenance of anesthesia by ether during operations in the oral cavity. He was in demand as a lecturer before surgical and dental associations. He was an ardent society attendant. Following the merging and consolidation of the American Dental Association and the Southern Dental Association, Dr. Fillebrown was elected the first president of the present National Dental Association at Old Point Comfort, Aug. 5, 1897. He served in this capacity at the next session of the association held in Omaha, Aug. 30, 1898. He was also president of the Maine State Dental Association, president in 1907



Thomas Fillebrown

of the American Academy of Dental Science at Boston, a member of the Massachusetts State Dental Society, the American Medical Association, the Massachusetts Medical Society, and the Maine Medical Association, the Harvard Dental Alumni Association of which he was president 1871 to 1874. He also was a member of the Massachusetts Society of Sons of the American Revolution.

In 1862 he married Miss Helen Dalton, of Kenfield, Maine. To them was born Edith S., who died in infancy, Harriet A., Helen F., Dr. Chas. D., and Winthrop Fillebrown, who survive him. The funeral services were held at the residence of Dr. Fillebrown's brother, C. B. Fillebrown, on Friday, Jan. 24, and the remains were interred at Portland, Maine. Dr. Fillebrown's work in Operative Dentistry and Oral Surgery, at which he was an expert will stand out prominently for many years to come. His life was one of devotion to his profession and his influence as a teacher and writer leaves a record of good work and devotion for his chosen calling.

JOSEPH PORTER MICHAELS.

BIOLOGIST, MICROSCOPIST, CHEMIST, PROSTHETIST.

"KNOW THY SALIVA—TO KNOW THYSELF."

It is not a well-known fact, in America at least, that the subject of this sketch is a native born American, and that he, like a number of other American dentists, such as Evans, Miller, Williams, Jenkins, the Davenports and the Mitchells, all American by birth and education, chose a foreign field in which to labor, and all having had the choicest clienteles and while abroad acquired both fame and many honors, as well as a goodly share of this world's goods.

Joseph Porter Michaels was born in New York City, September 10, 1838, the son of John E. and Sarah E. Durand Michaels. His father, engaged in artistic ornamental work, died when his son was eight years of age.

Young Michaels, brought up in the Presbyterian faith, attended the New York City public schools and was in a stock broker's office about six months before studying dentistry, which he began in 1853, with a Dr. Latson, and subsequently with Dr. Dalrymple and afterwards with Dr. Ryder, all of New York. In November, 1858, he went to England and became an assistant to Dr. Ballard, of London. In the autumn of 1859, he went to Paris as operator to Dr. Perterre. Here he continued until 1867. During this association he assisted in creating the Preterre Museum of Dental Prosthesis, which was later bought and presented to the Dental School of Paris by Dr. Lecandy.

In 1868, Dr. Michaels became associated with Dr. Thomas W. Evans, the famous American dentist of Paris. Under this association, Dr. Michaels established a practice at Vienna, Austria. Here he continued until 1876, when he returned to Paris, established an independent private practice, and took an active part in hospital service and dental school work.

Soon after this he began his prosthetic restorations of the mouth, palate, maxillaries, nose, larynx and other lost parts of the human frame, and soon acquired a reputation for his skill in this line of work.

Among his works of dental and other prosthetic restoration presented to the Academy of Medicine of Paris are:

Restoration of the Nose, Arch and the Velum of the Palate and the



J. P. Michael

Maxillaries after the total removal of the bones of the face. (Case of Heterotaxy of the Maxillaries) Hospital St. Louis, 1890.

Restoration of the superior half of the Humerus. Reinstating the articulation "Euarthrodiale Scapulo-Humerale." (Case of Tuberculose-Osseuse) Hospital International, Paris, 1894.

Restoration, by special appliance, to replace the parts lost after the total removal of the larynx; the superior portion of the œsophagus, and the inferior part of the pharynx. (Case of Epithelioma) Hospital St. Jean de Dieu, 1895.

Restoration of the Tibia with bone splints slightly decalcified. (Case of subacute osteomyelitis) International Hospital, 1896.

Restoration of the bones of the foot, fourth and fifth metatarsiens, the cuboid, and the third cuneiform, by a cement composed of calcinated and pulverized bone agglomerated. International Hospital, 1896.

Restoration of the Naso-buccal cavities (artificial nose and dental prosthesis combined by prosthetic appliance). (Case of rhinoscleroma) Hospital International, 1895.

These patients were presented before the Academy of Medicine, Paris, by Dr. Peau and Dr. Michaels, and published in the bulletin of the Academy with many other restorations, which are too numerous to mention. Duplicates of these prosthetic appliances have been given to the museum of the Dental School of Paris.

Dr. Michaels has made many other inventions such as instrumental appliances, electrical machinery, generators, motors, etc.

Dr. Michaels later in life became interested in biological chemistry, making many experiments and investigations of this subject in which probably he has done his best and most fruitful work for the dental profession, a work that has made him famous as an authority.

He advocates the study of biological chemistry in general and specially sialo-semiology by chemical analysis and practical experiments to discover the facts regarding the differential influences of pathological and dyserasic saliva as compared with the normal saliva, whereby may be established a scientific basis for future research of a prophylactic treatment of buccal and dental diseases.

The formation of a scientific body (physiologist, chemist and dentist), who, in unity may accept for consideration all subjects and communications submitted, and advise as to confirming or rejecting theories or suggestions. It is his theory that the saliva of man is a living liquid material with organileptic physical and chemical properties, saccharifiable, fermentative, precipi-

table and alterable. Its chemical equilibrium characterises the eucrasic state. The chemical disequilibrium characterises a dyscrasic state. This is not a matter of theory but one must learn it. (See *Dental Cosmos*, December, 1900, page 1293.)

Among Dr. Michaels' literary contributions are the following:

Work on Restoration of the Maxillaries (1890).

On Prosthetic Appliances destined to replace the loss of bone substance (Congress of Nancy, 1894).

On dental Affections, Osteite, Necrose-Phosphore, Cancer. Lessons of Physical Surgery (Tome IX Pean, bulletin of the Faculty of Medicine. Congress of Nancy, 1895).

On the subject of Hyperacidity and Sulfocyanures of Saliva in the Chemical Abrasion of the Teeth (Congress of Lyons, 1896).

On buccal restorations (Musenm Preterre) (Congress, Paris, 1897).

On Prosthetic restorations, Presentation of maladies and lantern projections (3d International Congress, Paris, 1900).

Essay on Sialo-Semeiology (read at 3d International Congress, Paris, 1900).

Diagnosis of Diathetic Maladies by Chemical and Microscopic studies of the Organoleptic Characters of Mixed Saliva (4th International Congress, St. Louis, 1904).

The use of Non-Conductors before Introducing a filling. Mode of Inserting Amalgam (International Dental Congress, Cosmos, Vol. XXXII, p. 224, 1890).

A rapid Method of making a gold plate (International Dental Congress, Cosmos, Vol. XXXII, pp. 224-225, 1890).

Gold Filling. Hand Pressure Thimble. Pad-carrier to retract cheek and close parotid duct (Clinic. 3rd International Dental Congress, Cosmos, Vol. XXXII, pp. 231-232, 1890).

In Sialo-Semeiology; Analysis of the Saliva as an Aid in the Diagnosis of Diathetic Diseases and Gingivo-Dental Changes (3rd International Dental Congress, Cosmos, Vol. XLII, pp. 1293-1297. Cosmos, Vol. XLII, pp. 1334-1335. Ed. 1900).

Restorative Prosthesis (Paris International Dental Congress, Cosmos, Vol. XLIII, pp. 64-67. Discussion, Cosmos, Vol. XLIII, pp. 67-68, 1901).

Re-work on Sialo-Semeiology (Cosmos, Vol. XLIII, pp. 1223-1224. Ed. 1901).

Facial Neuralgia (American Dental Club of Paris, Cosmos, Vol. XLV, p. 50, 1903).

"Sialology: Differential Analyses, Elements of Value in Medical Diagnosis" (Fourth International Dental Congress, Cosmos, Vol. XLVII, pp. 207, 1903).

Dr. Michaels has received many decorations and many honors in recognition of his skill and research work. Amongst them are as follows:

Officer of the Order "Leopold II" (Tuscany, 1871), Chevalier of the Order Ernest August (Hanover, 1872), Officer of the Academie (France, 1891), Chevalier of the "Legion of Honor" (France, 1895), Officer of the Order of Danilo I (Montenegro, 1895), Diploma of the American Institute (United States, 1853), Diploma and Medal, Societe d'Encouragement (France, 1883), Grand Medal of Honor (Odontological Society of Paris, 1894), Diploma of Gold Medal (Universal Exposition, St. Louis, 1904).

He was honorary president of the Dental Congress of Nancy, 1896; honorary president, French National Dental Congress, Lyons, 1898; felicitation and vote of thanks, Congress of Hygiene (Dental Section), Madrid, 1898; Eloge and Citation, Third International Dental Congress, Paris, 1900. He received the nomination to the professorship of the Dental School of France 1884, and was one of the founders of the Odontechnical School of Paris, and served in daily attendance for six or seven years. He is a member of the American Dental Club of Paris, of the Odontological Society, Paris; The American Academy Dental Surgery, New York; The Stomatological Society, Paris, and is an honorary member of the following societies: Odontological Society, Rio Janeiro, Brazil; New York Institute of Stomatology; Odontological Society of New York; Odontological Society of Spain; Odontological Society of Cataluna; Academy of Stomatology, Philadelphia; Second Section Etiology, Pathology, Bacteriology, Fourth International Dental Congress; California State Dental Association; Odontological Society of France, and a charter member of the International Society of Electricians of France as well as a charter member of the Paris branch of the Sons of the American Revolution.

As to the personal side of Dr. Michaels' life, he is fond of art and music, and is occasionally a writer of philosophical maxims and humorous sonnets. His hobbies are mechanical inventions, chemical biology, microscopical histology, study of prehistoric human teeth and dental pathology. He has a large collection of teeth and bones (human and lower animal) of all ages, neolithic, bronze, iron, galo-Roman, Moyen-age, patheolithic, and a large collection of normal, pathological and anomalies of human teeth. A collection of histological preparations of human and animal teeth, prehistoric and modern, and a collection of photo-micrographs and histological lantern projections of dental pathology. His day is rising at 4 A. M. to study, and for research work.

He was married in 1870 to Miss Armina Farrington (of English descent), who died after thirty-two years of happy married life. To them were born three children, two daughters, Marie and Cecile, and one son, Henry, a dentist of Paris.

Dr. Michaels is persistently energetic, full of enthusiasm for study and research, and has served his profession faithfully for fifty-five years, having contributed greatly to its knowledge of biological chemistry and prosthetic restoration, and other branches of its science and art. The profession is indeed his debtor. He is in the class of those of whom the late Dr. W. George Beers referred, "The greatest heroes of our profession are those who have given freely their knowledge of science and art to their professional brethren."

WILLIAM HERBERT TAGGART, D. D. S.

THE MAN OF THE HOUR. THE INVENTOR OF THE CAST GOLD INLAY.

The subject of this biography was born March 23rd, 1855, at Freeport, Illinois, the son of Charles and Margaret Taggart, his father being a prosperous merchant in Freeport. He was educated in the public schools of that town.

In early boyhood young Taggart showed evidence of marked mechanical ability. He, at his odd moments, was working with tools and studying mechanics. His interest in machinery caused him to "loaf" around machine shops and factories, where he was welcomed by the older mechanics, who took an interest in instructing him and encouraging him to become more proficient. At the age of twelve years he won the prize, a diploma, offered by the County Fair Association at Freeport for the best piece of mechanism invented by a boy under sixteen years of age. His production being a complete steam engine patterned after a large one in a reaper factory.

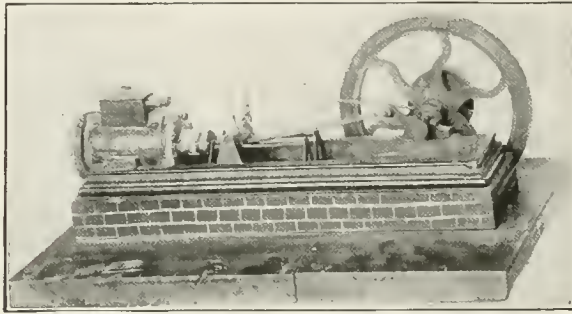
To accomplish this he made the lathes on which cylinders were bored, made the brass castings, etc. Later he became an apprentice in a machine shop in Freeport. Here he continued until 1872 when he went to Chicago to finish his mechanical education. The panic of 1873 threw thousands out of employment, he was one of the many. After tramping the streets in search of employment, in answer to an advertisement in *The Chicago Tribune* for a boy to polish plates, etc., in a dental office for board and lodging, young Taggart applied, secured the position and was formally introduced into dentistry in the office where Dr. C. P. Pruyn of Chicago had been a former student. The first night after his engagement, while sleeping in the office, a patient suffering with the toothache, in search of a dentist, woke him and he successfully performed his first operation of casting, i. e., casting his nerve against luck, which accompanied with his knowledge of mechanics resulted in a successful operation, much to the surprise of himself and his employer next morning. With this introduction dentistry gained, which afterwards has proven to be its and humanity's benefactor.

After a three months' experience in this office, young Taggart went back to Freeport and "made a circuit" of four towns as an itinerant, spending a



N. H. Taggart.

week in each town for a year. Desiring further knowledge he went to Philadelphia in 1875 and attended The Philadelphia Dental College from which he graduated as D. D. S. in 1877. After this he permanently located in Freeport and soon enjoyed a good practice. While here he joined the Illinois State Dental Society, of which he was president in 1890. Here also he married Miss Ida Long, October 5, 1883. One daughter, Florence, is the result of their union, she having inherited much of her father's wit and artistic and mechanical talents, for he is not only brilliant in mechanics but equally so at *repartee*, as well as in modeling in clay and sculpture. Miss Florence is an expert metal worker of the arts and crafts school, especially excelling in the



Steam Engine made by Wm. Herbert Taggart.

manufacture of artistic jewelry, doing the designing, fusing, soldering and finishing with her own brain and hands.

After sixteen years of successful practice at Freeport, Dr. Taggart removed to Chicago in 1892 and entered upon general practice, yet making an especial study of porcelain art, and soon acquiring a reputation in porcelain crown and bridge, inlay and continuous gum work. Here he became identified as a member, with the local dental societies, and was elected the first president after the consolidation of The Chicago Dental and the Chicago Odontographic Societies. He gave frequent clinics before many societies throughout the country. His clinics were always new ideas and consisted of original work.

He is an honorary member of The Odontological Society of New York City, The Second District Society of New York City, The Missouri State Dental Association, and also an active member of the Delta Sigma Delta Fraternity, as well as the A. F. and A. M.

Knowing there was practically no limitations to man's ingenuity, Dr.

Taggart years ago dreamed and hoped for the day for better and easier dentistry, with less discomfort to the patient and less nervous strain to the operator. Now that these hopes are realized by his ingenuity, Dr. Taggart surely must realize the merits of the Presbyterian doctrine of "Predestination," for truly he was predestined to bring about the cast gold inlay on which idea he began working in 1898, first by gravity casting in an electric furnace, having separable flasks and using an excess of gold and later casting with the matrix method. With the latter method he felt the limitations of fit, adaptation, occlusion, etc., and began work in a different direction, i. e.: the method of casting first with the plunger and automatic method of handling the blow pipe. Each improvement consisted in attaching some part which "was in luxury today but became a necessity tomorrow."

After years of thought and energy, working nights while others slept and on Sundays while others worshiped, he felt justified in giving the results of his labors to the profession. This he did in a paper read before the New York Odontological Society, January 15, 1907, nine months before his casting machine was on the market. It has been said by many, here Taggart made his fatal mistake. He should have waited until he had a thousand machines ready for sale and then announced his method. For his commercial benefit this statement is true, but ethically and from the professional standpoint, his generous attitude in this matter is generally applauded.

It is estimated by those who have given the subject thought that there are today at least fifteen thousand infringements on Dr. Taggart's original method within the past year, meaning at least a loss of \$1,500,000 in revenue to him. The chief evidence that he is the originator of this method, however, is that all of the various methods now known immediately followed, and none preceded his introduction.

His method has virtually revolutionized the practice of dentistry. It seems to lend itself to the spirit of the times. At this age of high tension, when "time is money" it eliminates the pain and discomfort and tediousness of dental operations. With its ease both to patient and operator it surely may be classed as one of the great benefits to the human race, both from a humanitarian and artistic point of view, for it surely lends itself to all that is high grade and artistic in our calling. It has been for ages the tendency of mankind to stone its heroes and crucify its saviours. This is true to the present day, and was so aptly illustrated after the death of Grover Cleveland, who, when in his active political career was damned as a traitor to both party and country, but upon his death is universally acknowledged to be one of the

nation's greatest citizens. It is lamentable that the dental profession is so disloyal to the inventor of this great boon to dentistry. While some of the principles are old, i. e.: the disappearing model dates from 1846 and Dr. Carroll cast aluminum with pressure twelve years ago, it was Taggart who combined the various ideas and added to them and perfected a method which has brought comfort and ease to the long suffering patient and enhanced the usefulness and standing of each dentist in his respective community, where this new method is practiced. Credit not only for being the originator and inventor should be given Dr. Taggart by the profession but they should also show their loyalty and appreciation of his days and nights of labor in perfecting his invention, by the substantial financial support due him. Praise may expand one's hat band, but it does not keep the wolf from the door. Barnum, who gave the rubber dam; Horace Wells, the discoverer of the greatest boon humanity has had, i. e.: anaesthesia by the inhalation of nitrous oxide gas, and many others of our professional benefactors have died in poverty, because their fellows have not given them the support, moral and financial, that was their due. Let this not be our attitude towards the inventor of the cast gold inlay, William H. Taggart, who for his great gift to dentistry is in the same class as those of whom Edward Markham speaks:

“Who puts to place a fallen bar,
Or flings a rock out of a traveled road,
His feet are guided towards the Central Star,
His name is whispered in the God's abode.”

WILBUR FISK LITCH. M. D., D. D. S.

AUTHOR, TEACHER, AND EDITOR.

Wilbur Fisk Litch was born September 18th, 1840, in Eastham, Mass., of Scotch-English ancestry, his forebears being among the pioneer settlers in Plymouth Colony.

His father was Josiah Litch, a minister in the Methodist Episcopal Church.

In consequence of the removal of his father and family to Philadelphia Dr. Litch from early childhood has been a resident of that city and there received his education.

In 1858 he entered as a student the office of his uncle, Dr. J. M. Barstow, a practicing dentist, and one of Philadelphia's most expert carvers of porcelain block teeth, under whom he had a thorough training in office and laboratory work. In 1859 he matriculated in the Pennsylvania College of Dental Surgery from which he graduated with the degree of D. D. S. in 1861.

For three years he was a student in the private anatomical school and dissecting room of the celebrated anatomist and surgeon, Professor D. Hayes Agnew.

After graduating in dentistry he entered upon the study of medicine in the Jefferson Medical College, and graduated with the degree of M. D. with the class of 1864-65.

After several years of service in the medical department of the United States Army, his last assignment being that of post surgeon at Fort Yuma, California, he returned to civil life and, in 1871, entered upon active dental practice in Philadelphia.

In 1878 he was appointed Professor of *Materia Medica*, Therapeutics and Principles of Prosthetic Dentistry, in the Pennsylvania College of Dental Surgery, and in 1899 was made dean of the college. These positions he continues to occupy. Dr. Litch is a member and ex-president of the Pennsylvania State Dental Society, of the Pennsylvania Association of Dental Surgeons, and of the National Association of Dental Faculties; he is a member of the National Dental Association, and its vice-president for the east 1907-8,



William F. Litch.

an honorary member of the American Academy of Dental Science, a member of the Philadelphia County Medical Society and of the American Medical Association.

To dental literature Dr. Litch's chief contribution is "The American System of Dentistry" published in 1888-1887 in three volumes. Of this work, which occupied some five years in preparation for the press, he was the editor and to it he contributed the chapters on "Anæsthesia and Anæsthetics," "Crown and Bridge Work" and "Metallic Facings for Carious Crowns."

In 1881 Dr. Litch read before the Pennsylvania State Dental Society a paper on "Antiseptics," published in the *Dental Cosmos*, February, 1882, in which the value of iodine and other of the halogens as disinfectants, dependent upon their power of not only destroying germs, but decomposing putrescent gases in root canals, was emphasized and, probably, for the first time explained in connection with dental therapeutics.

One of his practical contributions to dentistry was the half band crown for upper incisors and cuspids, first employed by him in 1876, prior to the introduction of the Richmond full band crown, and described and illustrated under the title "The Collar Crown" in the *Dental Cosmos*, September, 1883.

In 1899 Dr. Litch became editor of the *Dental Brief*, which still continues under his editorial supervision.

THESE ARE A FEW OF THE MANY MAKERS OF AMERICAN DENTISTRY.

There are many others who have added luster not only to dental surgery, but to other lines of art and science, but lack of space will not permit their mention in this volume.

In the whole they were a versatile lot, whose fingers and brains were attuned to produce the beautiful and artistic, whose good deeds have left a halo beneficent to their memory that will live many years after the bones of the writer and reader are mouldering in the dust of death.

Their lives are a glorious example of the gospel of work, which is the real recompense for a man's endeavor in this life. They are worthy for us to emulate. Shall we not say of them as did old Adam in "As you like it," when gray with age, bent with toil and tottering after his youthful master, whose sire and grandsire he also had faithfully served, he exclaimed: "Master! Lead on and I will follow Thee to the last gasp, with love and loyalty."

FINIS.



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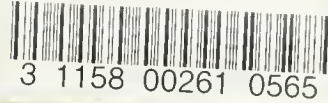
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